ALTIGEN COMMUNICATIONS

Telephony Hardware Manual

MAXCS 6.7

February 2013

WARNING! Toll fraud is committed when individuals unlawfully gain access to customer telecommunication systems. This is a criminal offense. Currently, we do not know of any telecommunications system that is immune to this type of criminal activity. AltiGen Communications, Inc. will not accept liability for any damages, including long distance charges, which result from unauthorized and/or unlawful use. Although AltiGen Communications, Inc. has designed security features into its products, it is your sole responsibility to use the security features and to establish security practices within your company, including training, security awareness, and call auditing.

NOTICE: While every effort has been made to ensure accuracy, AltiGen Communications, Inc., will not be liable for technical or editorial errors or omissions contained within the documentation. The information contained in this documentation is subject to change without notice.

This documentation may be used only in accordance with the terms of the AltiGen Communications, Inc., License Agreement.

MAX Communication Server, MaxAdministrator, MaxCommunicator, MaxAgent, MaxSupervisor, MaxOutlook, MaxInSight, MaxCall, Enterprise Manager, AltiServ, AltiLink, AltiConsole, VRPlayer, Zoomerang, IPTalk, Alti-Mobile Extension, InTouch Dialer, AltiReport, and SuperQ are trademarks or registered trademarks of AltiGen Communications, Inc. All other brand names mentioned are trademarks or registered trademarks of their respective manufacturers.

AltiGen's products are protected under one or more of the following U.S. patents, with other U.S. patents pending: 6532230; 6192344; 6292549; 6493439; 6909780; 6738465; 6754202; 6766006; 6928078; 6909709; 6956848; 7058047; 7013007; 7027578; 7280649; 7308092.

AltiGen Communications, Inc.
410 East Plumeria Dr.
San Jose, CA 95134
Telephone: 888-AltiGen (258-4436)
Fax: 408-597-9020
E-mail: info@altigen.com
Web site: www.altigen.com

Contents

About This Manual

This handbook is for dealers, administrators, and technicians who are responsible for installing an AltiGen telephony system and need to know about:

- System requirements
- Federal Communications Commission (FCC) and Underwriters Laboratories (UL) safety requirements
- AltiGen telephony boards
- Board handling procedures
- System limitations
- Other information related to the hardware of an AltiGen system

Warranty and Limitation of Liability

Following is a statement of product warranty and limitation of liability.

Warranty

What The Warranty Covers

AltiGen Communications warrants its hardware products to be free from defects in material and workmanship during the warranty period. If a product proves to be defective in material or workmanship during the warranty period, AltiGen Communications will, at its sole option, repair, refund or replace the product with a like product.

How Long the Warranty Is Effective

All AltiGen Communications products are warranted for one (1) year for all parts from the date of the first end user purchase.

Whom the Warranty Protects

This warranty is valid only for the first end user purchaser.

What the Warranty Does Not Cover

1. Any product on which the serial number has been defaced, modified or removed.
2. Damage, deterioration or malfunction resulting from:
   - Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
   - Repair or attempted repair by anyone not authorized by AltiGen Communications.
   - Any damage of the product due to shipment.
   - Removal or installation of the product.
   - Causes external to the product, such as electric power fluctuations or failure.
   - Use of supplies or parts not meeting AltiGen Communications' specifications.
   - Normal wear and tear.
   - Any other cause which does not relate to a product defect.
3. Shipping, installation, set-up and removal service charges.

Note: At AltiGen's sole discretion, if the product(s) is determined to be repairable, the then current Out of Warranty charge shall apply.

How to Obtain Service

End user customers, contact your Authorized AltiGen Dealer for service.

Authorized AltiGen Dealers must follow the steps below for service:

1. Take or ship the product (shipment prepaid) to AltiGen Communications, Inc.

   All materials being returned to AltiGen must have an associated RMA number. RMA numbers are issued by AltiGen Customer Service and can be obtained from AltiGen's authorized dealer web site, at https://dealer.altigen.com (click "Technical Support," then click "Submit RMA Request") or by calling 1-888-AltiGen. AltiGen reserves the right to refuse return of any material that does not have an RMA number. The **RMA number should be clearly marked on the outside of the box** in which the material is being returned. For example:

Attn: RMA #123
AltiGen Communications, Inc.
410 East Plumeria Dr.
San Jose, CA 95134

Upon authorization of return, AltiGen will decide whether the malfunctioning product will be repaired or replaced.

2. To obtain warranty service, you must provide 1) date/proof of purchase, 2) serial number of product, 3) your name and company name, 4) your shipping address and 5) description of the problem.
3. For additional information, log onto AltiGen's authorized dealer web site, at https://dealer.altigen.com.

Effect of State Law

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitations on implied warranties and/or do not allow the exclusion of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

Sales Outside the U.S.A.

For AltiGen Communications products sold outside of the U.S.A., contact your AltiGen Communications dealer for warranty information and services.

Internet and Security Disclaimer

AltiGen Communications assumes no liability for the security of customer computer systems, web sites and networks. Any computer connected to the Internet is at risk to the system being compromised. While there are many ways to configure an effective, secure firewall platform, customer implementations will vary, and as such, AltiGen Communications cannot specify firewall settings. You may refer to the section on firewalls in this document for a list of recommended ports used by various AltiGen applications.

Limitation of Liability

Except for personal injury, direct damages to tangible personal property proximately caused by AltiGen products and liability otherwise expressly assumed in a written agreement signed by AltiGen, the liability of AltiGen, its affiliates, suppliers, and authorized resellers for any claims, losses, damages, or expenses from any cause whatsoever (including acts of omission of third parties), regardless of the form of action, whether in contract, tort or otherwise, shall not exceed an amount equal to the lesser of the direct damages proven or the purchase price of the product. In no event shall AltiGen or its affiliates, suppliers, or authorized resellers be liable for incidental, consequential, or any other indirect loss or damage (including lost profits or revenues) incurred in connection with the product. This limitation of liability shall survive failure of the exclusive remedy set forth in the limited warranty referred to in this book under "Warranty."

FCC and Industry Canada Compliance

This section describes the requirements for compliance with Federal Communications Commission (FCC) Rules and Industry Canada CS-03 standard.

Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 and Part 68 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at his own expense.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

FCC Requirements

1. The Federal Communications Commission (FCC) has established rules that permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin phones.
2. If this device is malfunctioning, it may also be causing harm to the telephone network; this device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.
3. The telephone company may make changes in its technical operations and procedures; if such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You will be advised of your rights to file a complaint with the FCC.
4. If the telephone company requests information on what equipment is connected to their lines, inform them of:
   - The telephone number to which this unit is connected.
   - The ringer equivalence number. [Example: 0.0B. See tables under "Port Identification, Facility Interface, Service Order Codes" on page 7.]
   - The USOC jack required. [Example: RJ-21X. See tables under "Port Identification, Facility Interface, Service Order Codes" on page 7.]
   - The FCC Registration Number. [See label on board/equipment.]
   - Industry Canada (Industrie Canada) Certification Number. [See label on board/equipment.]

The second and fourth Items are indicated on the label. The Ringer Equivalence Number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5.0A). If too many devices are attached, they may not ring properly.

Service Requirements

In the event of equipment malfunction, all repairs should be performed by our Company or an authorized agent. It is the responsibility of users requiring service to report the need for service to AltiGen or to one of our authorized agents. Service can be obtained at your Authorized AltiGen Dealer.

Equipment Attachment Limitations - Industry Canada

NOTICE: The Canadian Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with the single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to the certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution! Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

WARNING! **Changes or modifications to this unit not expressly approved in writing by AltiGen Communications, Inc., could void the user's authority to operate this equipment.**

Port Identification, Facility Interface, Service Order Codes

The following tables list the manufacturer's network interface port designations, Facility Interface Codes (FIC), Ringer Equivalence Number (REN), or Service Codes and the network jacks for the required facilities. The facility interface and service order codes are with reference to the codes specified in Table 5 of Appendix D of FCC Form 730 Application Guide of January 1998.

Table 1. Network Digital Trunk Interfaces for Digital Services (Triton)

Triton T1/E1 PRI FCC Registration No., Part 68 5SMUSA-25184-PF-E

Manufacturer Port Identifier	Facility Interface Code (FIC)	Service Order Code (SOC)	Network Jack (USOC)
ALTI-T1E1-1	04DU9-BN (SF)	6.0P/AS.2	RJ-48C[a]
	04DU9-DN (SF B8ZS)	6.0P/AS.2	RJ-48C[a]
	04DU9-1KN (ESF)	6.0P/AS.2	RJ-48C[a]
	04DU9-1SN (ESF B8ZS)	6.0P/AS.2	RJ-48C[a]

a. The Triton T1/PRI interface (ALTI-T1E1-1) connects to the Public Switched Telephone Network through an FCC registered NCTE which specifies the type of network jack to be used.

Table 2. Network Digital Trunk Interfaces for Digital Services (MAX1000/2000 family)

MAX T1/E1 PRI FCC Registration No., Part 68 US:5SMPF13BMAX1000 and US: 5SMPF13BMAX2000

Manufacturer Port Identifier	Facility Interface Code (FIC)	Service Order Code (SOC)	Network Jack (USOC)
ALTI-M0404-T1E1 ALTI-M0000-T1E1	04DU9-BN (SF)	6.0P/AS.2	RJ-48C[a]
	04DU9-DN (SF B8ZS)	6.0P/AS.2	RJ-48C[a]
	04DU9-1KN (ESF)	6.0P/AS.2	RJ-48C[a]
	04DU9-1SN (ESF B8ZS)	6.0P/AS.2	RJ-48C[a]

a. The MAX1000/2000 family of T1/PRI interface (ALTI-M0404-T1E1 and ALTI-M0000-T1E1) connects to the Public Switched Telephone Network through an FCC registered NCTE which specifies the type of network jack to be used.

Table 3. Network Digital Trunk Interfaces for Digital Services (MAX4000 family)
MAX T1/E1 PRI FCC Registration No., Part 68 US:5SMPF13BMAX4000

Manufacturer Port Identifier	Facility Interface Code (FIC)	Service Order Code (SOC)	Network Jack (USOC)
ALTI-VT1E1SM-1PT, ALTI-VT1E1-2	04DU9-BN (SF)	6.0P/AS.2	RJ-48C[a]
	04DU9-DN (SF B8ZS)	6.0P/AS.2	RJ-48C[a]
	04DU9-1KN (ESF)	6.0P/AS.2	RJ-48C[a]
	04DU9-1SN (ESF B8ZS)	6.0P/AS.2	RJ-48C[a]

a. The MAX4000 T1/PRI interface (ALTI-VT1E1SM-1PT, ALTI-VT1E1-2) connects to the Public Switched Telephone Network through an FCC registered NCTE which specifies the type of network jack to be used.

Table 4. Triton Analog Trunk Interfaces for Loop Start/Ground Start and Loop Start Services

Manufacturer Port Identifier	Facility Interface Code (FIC)	REN	Network Jack (USOC)
ALTI-TTAT-12GS	02GS2/02LS2	0.5B	RJ-21X
ALTI-TTAT-12	02LS2	0.5B	RJ-21X
ALTI-TTAT-8	02LS2	0.5B	RJ-21X

Table 5. Proton Analog Trunk Interfaces for Loop Start and Loop Start Services
Proton Series Registration No., Part 68 US:5SMPF13BPROTON

Manufacturer Port Identifier	Facility Interface Code (FIC)	REN	Network Jack (USOC)
ALTI-P0800	02LS2	1.3B	RJ-21X

Table 6. MAX1000/2000 family of Analog Trunk Interfaces for Loop Start and Loop Start Services

Manufacturer Port Identifier	Facility Interface Code (FIC)	REN	Network Jack (USOC)
ALTI-M0408	02LS2	1.3B	RJ-21X
ALTI-M0804	02LS2	1.3B	RJ-21X

Table 7. MAX4000 family of Analog Trunk Interfaces for Loop Start and Loop Start Services

Manufacturer Port Identifier	Facility Interface Code (FIC)	REN	Network Jack (USOC)
ALTI-V0404	02LS2	1.3B	RJ-21X
ALTI-V0416	02LS2	1.3B	RJ-21X

Disruption of Network

If any Triton, Proton, or MAX boards disrupt the telephone network, the telephone company can discontinue your service temporarily. If possible, the telephone company will notify you in advance. If advance notice is not practical, they will notify you as soon as possible. You are also informed of your right to file a complaint with the FCC.

Direct Inward Dialing (DID) Answering Supervision

Customers allowing Triton T1/PRI, Triton, Proton, or MAX Analog Extension/DID to be operated in such a manner as to not provide for proper answer supervision is a violation of Part 68 of the FCC rules.

Proper answer supervision occurs when:

1. The MAX Communication Server system returns answer supervision to the PSTN when DID calls are:
   - Answered by the called station.
   - Answered by the attendant.
   - Routed to a recorded announcement that can be administered by the customer.
2. The AltiServ system returns answering supervision on all DID calls forwarded to the PSTN.

Class A Equipment

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take adequate measures.

CHAPTER

1

Safety Guidelines

The following information is included in this publication for the use and safety of installation and maintenance personnel.

Important Safety Instructions

- Read all of the instructions before attempting to operate the equipment and before connecting the power supply.
- Always follow basic safety precautions to reduce the risk of fire, electrical shock, and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture, or install this product near water. Never spill liquid of any kind on this product.
- Never push objects of any kind into this product through module openings or expansion slots, as they may touch dangerous voltage points or short out parts, which could result in the risk of fire or electrical shock.
- Refrain from opening the cabinet as there are high voltage components inside. Refer servicing to qualified service personnel. If you are a qualified service personnel, power down everything before opening.
- Do not attach the power supply cord to building surfaces. Do not allow anything to rest on the power cord or allow the cord to be abused by persons walking on it.
- To protect this equipment from overheating, do not block the slots and openings in the module housings that are provided for ventilation.
- Avoid using a telephone (other than a cordless type) during an electrical storm.
- There may be a remote risk of electric shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.

Seguridad

La siguiente información se incluye en la presente publicación para la utilización y seguridad del personal instalador y de mantenimiento.

Información de Seguridad de Importancia

- Lea todas las instrucciones antes de que intente operar el equipo y antes de conectar la fuente de alimentación.

- Observe siempre las precauciones básicas de seguridad, a fin de reducir el riesgo de incendio, electrochoque y de lesiones al personal.
- Con objeto de evitar incendios o el riesgo de electrochoque, no exponga la unidad a la lluvia, humedad, ni tampoco instale este producto cerca del agua. Jamás derrame ninguna clase de líquido sobre el producto.
- Jamás inserte objeto alguno, de ninguna clase, a través de las aberturas del módulo o de las ranuras de expansión de este producto, ya que podrían establecer contacto con puntos de voltaje peligrosos, o provocar cortos circuitos en los componentes del producto, y esto a su vez podría originar el riesgo de incendio o de electrochoque.
- Absténgase de abrir el gabinete ya que éste contiene componentes de alto voltaje. Asígnele el mantenimiento únicamente a personal capacitado. Si usted forma parte de dicho personal capacitado, corte absolutamente toda la energía eléctrica antes de que abra el gabinete.
- No sujete el cordón del suministro eléctrico a las superficies del edificio. No permita que objeto alguno descanse sobre el cordón del suministro eléctrico, ni que la gente lo maltrate al caminar sobre él.
- A fin de evitar el sobrecalentamiento del equipo, no obstruya las ranuras y aberturas que se encuentran sobre las cubiertas del módulo, ya que éstas se suministran para su ventilación.

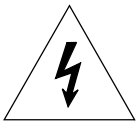
Sicherheit

Die in dieser Veröffentlichung enthaltene Information befaßt sich mit der Sicherheit von Personal sowohl beim Einbau als auch bei der Wartung des Geräts.

Wichtige Sicherheitsbestimmungen

- Vor Einschaltung der Stromversorgung und der Inbetriebnahme des Geräts mit allen Bestimmungen sorgfältig vertraut machen.
- Um die Gefahr von Feuer, elektrischem Schlag und anderen persönlichen Verletzungen zu verhüten, sind grundsätzliche Vorsichtsmaßnahmen zu beachten.
- Zur Vermeidung von Feuer oder elektrischem Schlag muß verhütet werden, das Gerät Regen oder Feuchtigkeit auszusetzen, oder aber es in Wassernähe zu installieren. Es darf auf keinen Fall Flüssigkeit auf das Gerät verschüttet werden.
- Um die Gefahr von Feuer oder elektrischem Schlag auszuschalten, die durch Berührung mit Spannungsteilen oder einem elektrischen Kurzschluß entstehen kann, dürfen auf keinen Fall Objekte irgendeiner Art durch Modulöffnungen oder Erweiterungsschlitze in das Gerät eingeführt werden.
- Das Gehäuse enthält Hochspannungsteile und sollte deshalb nicht geöffnet werden. Wartung ist von qualifiziertem Wartungspersonal durchzuführen.. Im Wartungsfalle ist vor der Öffnung des Gehäuses sämtliche Stromzufuhr abzuschalten.
- Stromversorgungskabel nicht an Gebäudeteilen befestigen. Keine Gegenstände auf das Stromversorgungskabel legen oder auf das Kabel treten.
- Zur Verhütung der Überhitzung des Gerätes ist die Verschließung von Ventilationsschlitzen und -öffnungen im Modulgehäuse zu vermeiden.

Safety with Electricity



DANGER

Do not take chances with your life. Follow these safety guidelines carefully.

High Voltages

- Observe all safety regulations and read the warnings, cautions, and notes posted on the equipment.
- Find the switch to power off the cabinet. Read the posted instructions.
- Ensure that equipment can not be powered from another source or controlled from a different circuit breaker or disconnecting switch.
- When a procedure requires that you power off the system:
- Lock the wall box-switch in the off position.
- Attach a DO NOT OPERATE tag to the wall box-switch.
- ***Never assume*** that the power is turned off. Always check to ensure that a circuit does not have power.

  Note: Unit must have ground wire attached if trunks are attached and system is unplugged.
- Do not work alone. Work with another person who knows the locations of the power-off switches, especially if you are working with *exposed* electrical circuits. (See note above.)
- Follow the instructions in the manual carefully, especially when working with circuits that are powered. Disconnect power when instructed to do so in the procedures.
- Disconnect all power before working near power supplies unless otherwise instructed by a maintenance procedure.
- Disconnect all power before installing changes in machine circuits unless otherwise instructed by a maintenance procedure.
- High voltages capable of causing shock are used in this equipment. Be extremely careful when measuring high voltages and when servicing cards, panels, and boards while the system is powered on.
- Do not wear jewelry or other metal objects when working on the equipment.
- When possible, work with one hand so that a circuit is not created.
- Use caution when installing or modifying telephone lines. Never install telephone wiring during an electrical storm.
- Never install a telephone jack where it can get wet unless the jack is specifically designed for wet conditions.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

Seguridad en El Manejo de La Electricidad

DANGER/PELIGRO

Do No ponga en riesgo su vida. Sigua estos lineamientos de seguridad al pie de la letra.

Alto Voltaje

- Observe todas las normas de seguridad y lea las advertencias, avisos de precaución y notas que se encuentran adheridos al equipo.
- Encuentre el interruptor que corta la corriente eléctrica del gabinete. Lea las instrucciones que se encuentran adheridas.
- Cerciórese de que la corriente eléctrica del equipo no pueda encenderse desde otra fuente, ni controlares desde ningún otro interruptor de circuitos o interruptor de desconexión.
- Cuando alguno de los procedimientos requiera que corte usted la corriente eléctrica del sistema:
- Fije el interruptor del centro de carga que se encuentra empotrado en la pared, en la posición de apagado (off).
- Pegue una etiqueta de NO OPERAR sobre el interruptor del centro de carga.
- ***Jamás presuponga*** que la energía eléctrica se encuentra apagada. Cerciórese siempre de que el circuito no tiene energía eléctrica.

  Nota: Cuando existan troncales conectadas a la unidad y el sistema se encuentre desenchufado, la unidad deberá tener instalado el cable de conexión a tierra.
- No trabaje sólo. Trabaje con alguna otra persona que conozca las ubicaciones de los interruptores de apagado de la corriente eléctrica, particularmente, si está usted trabajando con circuitos eléctricos descubiertos. (Lea la nota anterior).
- Siga al pié de la letra las instrucciones contenidas en el manual, particularmente, cuando trabaje con circuitos que tengan energía eléctrica. Desconecte la energía cuando las instrucciones del procedimiento se lo indiquen.
- Desconecte toda la energía eléctrica antes de trabajar cerca de cualquier fuente de alimentación, salvo que el procedimiento de mantenimiento le instruya lo contrario.
- Desconecte toda la energía eléctrica antes de efectuar cualquier cambio en los circuitos de la máquina, salvo que el procedimiento de mantenimiento le instruya lo contrario.
- El alto voltaje que utiliza este equipo puede ocasionar electrochoques. Tenga sumo cuidado al medir los altos voltajes y al darle mantenimiento a las tarjetas, paneles y placas cuando la energía eléctrica del equipo se encuentre encendida.
- No use alhajas u otros objetos de metal cuando trabaje en el equipo.
- Cuando le sea posible, trabaje con una sola mano, a fin de no producir un circuito.
- Tenga cuidado cuando instale o modifique líneas telefónicas. Jamás instale cableado telefónico durante una tormenta eléctrica.
- Nunca instale un conector telefónico en donde pueda mojarse, salvo cuando el conector se encuentre especialmente diseñado para funcionar en condiciones de humedad.
- Jamás toque cables o terminales telefónicas que no tengan aislante, a menos que haya desconectado la línea telefónica desde la interfase de la red.

Elektrosicherheit

DANGER/GEFAHR

Nicht mit dem Leben spielen.
Sicherheitsrichtlinien sorgfältig beachten.

Hochspannung

- Alle Sicherheitsregeln beachten und am Gerät angebrachte Warnungen und Hinweise lesen.
- Stellen Sie fest, wo sich der Gehäuseschalter befindet. Anleitung lesen.
- Stellen Sie sicher, daß das Gerät weder durch eine andere Stromquelle versorgt noch durch eine andere Sicherung oder Trennschalter kontrolliert werden kann.
- Sollte ein Verfahren die Abschaltung der Anlage erfordern:
- Wandschalter in der "AUS" - Position sperren
- Kennzeichen "NICHT BETÄTIGEN" am Wandschalter anbringen
- Gehen Sie NIE davon aus, daß der Strom abgeschaltet ist, sondern überprüfen Sie es.

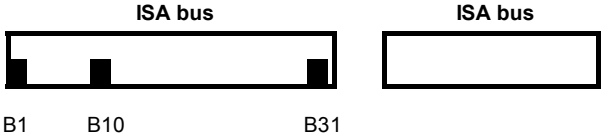
  Note: Anmerkung: Gerät muß geerdet sein, wenn Kabel angeschlossen und die Anlage abgeschaltet ist.
- Nicht alleine arbeiten. Arbeiten Sie mit jemandem, der weiß, wo sich der AUS-Schalter befindet, besonders dann, wenn an freiliegenden Schaltkreisen gearbeitet wird. (Siehe obige Anmerkung).
- Beachten Sie die Anleitungen im Handbuch sorgfältig, besonders dann, wenn an eingeschalteten Schaltkreisen gearbeitet wird. Strom abschalten, wenn ein Verfahren das vorsieht.
- Falls nicht anderweitig durch ein Wartungsverfahren bestimmt, ist der Strom bei Arbeiten nahe der Stromversorgung abzuschalten.
- Falls nicht anderweitig durch ein Wartungsverfahren bestimmt, ist der Strom bei Änderungen am Maschinenstromkreis abzuschalten.
- Dieses Gerät enthält Hochspannungen, die elektrischen Schlag verursachen können. Äußerste Vorsicht ist geboten beim Messen von Hochspannung und beim Warten von Schalttafeln und Steckkarten solange der Strom eingeschaltet ist.
- Bei Arbeiten am Gerät keinen Schmuck oder metallische Gegenstände tragen.
- Möglichst mit einer Hand arbeiten, um keinen Stromkreislauf entstehen zu lassen.
- Vorsicht bei der Installation oder Modifizierung von Telefonleitungen. Keine Telefonleitungen bei Gewittern legen.
- Keine Telefonbuchse installieren, wo die Gefahr besteht, daß sie angefeuchtet wird, es sei denn die Buchse ist für Feuchtigkeit besonders ausgelegt.
- Vermeiden Sie das Berühren von nichtisolierten Telefonkabeln oder Terminals, wenn die Telefonleitung an den Netzschnittstellen nicht abgeschaltet ist.

UL Regulatory Safety Requirements

(Requisitos Reglamentarios de Seguridad de La Asociación de Aseguradores (UL)/Sicherheitserfordernisse gemäß UL (Underwriter's Laboratories, Inc.))

Host Computer

1. Model AltiGen/MAX Communication Server apparatus is approved for connection to Telecommunications Systems specified in these instructions for use subject to the conditions set out in them. Any other usage will INVALIDATE this approval.
2. The host machine shall be "CE" marked, with the internal ISA and PCI slots operating at SELV in accordance with EN60950, 1992, issue 2, +A4.
3. This apparatus MUST be professionally installed.
4. The host machine MUST be hardwired earthed in accordance with EN60950, 1992, issue 2, +A4, 1997, cl. 6.2.1.2 with an earth wire from the host machine earthing terminal to the building earth.
5. The host machine SELV circuit is connected to the protective earthing terminal in accordance with EN60950 cl. 2.5.
6. The host machine ISA bus pins B1, B10, or B31 (edge connectors on CPU mother-board/backplane) MUST be less than 0.1 Ohms to host machine earthing terminal.



7. AltiGen complies with PCI Board specifications Rev. 2.1 (5V 32-bit).
8. The power required by the host machine and the total of all adapter cards installed within the host environment, together with any ancillary apparatus, shall not exceed the power specification of the host machine.
9. It is essential that, when other option cards are introduced that use or generate a hazardous voltage, the minimum creepages and clearances specified in the following table are maintained. A hazardous voltage is one that exceeds 42.4V peak AC or 60V DC. If you have any doubt, seek advice from a competent engineer before installing other adapters into the host machine.

Clearance (mm)	Creepage (mm)	Voltage used or generated by host or other cards
2.0	2.4 (3.8)	Up to 50 Vrms or Vdc
2.6	3.0 (4.8)	Up to 125 Vrms or Vdc
4.0	5.0A (8.0)	Up to 250 Vrms or Vdc
4.0	6.4 (10.0)	Up to 300 Vrms or Vdc

   For a host or other expansion card fitted in the host, using or generating voltages greater than 300V (rms or dc), advice from a competent safety engineer must be obtained before installation of the relevant equipment.

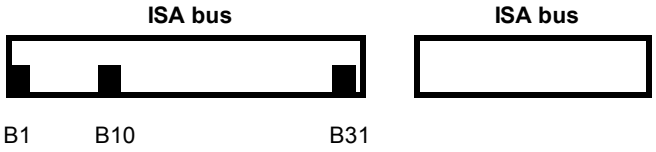
   Any other usage will **INVALIDATE** the approval of the apparatus, if as a result, it then ceases to conform to the standards against which approval was granted.

10. For the following AltiServ platforms — AltiServ1A-IP, AltiServ1E-IP, and Alti-Office 1B — make sure the input voltage selection switch (115/230V) is on the back of the chassis and is set to the proper voltage for your installation.

Requisitos Reglamentarios de Seguridad de La Asociación de Aseguradores (UL)

Computadora Principal

1. El aparato modelo AltiGen/MAX Communication Server se encuentra aprobado para conectarse a los Sistemas de Telecomunicaciones que se especifican en estas instrucciones y para emplearse bajo las condiciones que se indican en las mismas. Cualquier utilización distinta INVALIDA esta aprobación.
2. La computadora principal deberá encontrarse marcada con "CE", y sus ranuras internas ISA y PCI deberán estar operando en SELV, conforme lo indica el EN60950, 1992, edición 2, +A4.
3. La instalación de este aparato la DEBEN ejecutar profesionales.
4. La máquina principal DEBE conectarse a tierra conforme lo dispone el EN60950, 1992, edición 2, +A4, 1997, cl. 6.2.1.2, utilizando cable de conexión a tierra desde la terminal a masa de la máquina principal a la conexión a tierra del edificio.
5. El circuito SELV de la máquina principal debe conectarse a la terminal protectora de aterrizada de conformidad con el EN60950 cl. 2.5.
6. Las clavijas de los canales de distribución ISA B1, B10, o B31 de la máquina principal (conectores planos de entrada lateral de la placa matriz/panel de fondo (motherboard/back plane)) de la unidad central de proceso (CPU), DEBEN tener menos de 0.1 ohmios en la conexión a tierra de la máquina principal.



7. El AltiGen debe cumplir con las especificaciones de las Placas PCI, Rev. 2.1 (5V 32-bit).
8. La energía eléctrica que requiere la máquina principal y el total del conjunto de tarjetas de los adaptadores instalados dentro del ámbito de la máquina principal, junto con cualquier aparato auxiliar adicional, no deberá exceder las especificaciones de energía eléctrica de la máquina principal.
9. Es esencial que, cuando se introduzcan tarjetas opcionales que utilicen o generen voltajes peligrosos, también se mantengan las distancias y longitudes de frotamiento mínimas y máximas que se especifican en la tabla que aparece a continuación. Voltaje peligroso es aquel que excede de 42.4 voltios, en su valor máximo de cresta en la corriente alterna o, de 60 voltios, en su valor máximo de cresta en la corriente directa. Si tiene usted alguna duda, obtenga asesoría de un ingeniero competente, antes de instalar otros adaptadores en la máquina principal.

Distancia (mm)	Longitud de Frotamiento (mm)	Voltaje empleado o generado por la tarjeta madre u otras tarjetas
2.0	2.4 (3.8)	Hasta 50 Vrms o Vdc
2.6	3.0 (4.8)	Hasta 125 Vrms o Vdc
4.0	5.0A (8.0)	Hasta 250 Vrms o Vdc
4.0	6.4 (10.0)	Hasta 300 Vrms o Vdc

Para la tarjeta de la computadora principal o para las demás tarjetas de ampliación que se inserten en la principal y que utilicen o generen voltajes superiores a los 300 voltios (rms o dc), deberá obtener asesoría de un ingeniero competente en materia de seguridad, antes de proceder a instalar el equipo en cuestión.

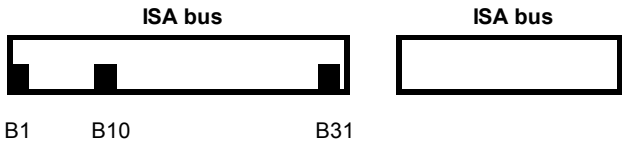
Cualquier uso distinto INVALIDARÁ la aprobación otorgada al aparato, si como resultado de dicho uso, éste deja de cumplir con los estándares para los cuales se otorgó la aprobación.

10. Para las plataformas siguientes de AltiServ — AltiServ1A-IP, AltiServ1E-IP, and Alti-Office 1B — se cerciora de el interruptor de la selección del voltaje de entrada (115/230V) está en la parte posteriora del chasis y se fija al voltaje apropiado para su instalación.

Sicherheitserfordernisse gemäß UL (Underwriter's Laboratories, Inc.)

Host Computer/Wirtsrechner

1. Das Gerät Model AltiGen/MAX Communication Server ist nur in Verbindung mit Telekommunikationssystemen zugelassen, die den gegebenen Anleitungen gemäß den darin geforderten Bedingungen entsprechen. Anderweitige Verwendung setzt diese Zulassung außer Kraft.
2. Das Hauptgerät ist mit "CE" zu bezeichnen, wobei die internen ISA und PSI Steckplätze bei SELV gemäß EN60950, 1992, Ausgabe 2, +A4, fungieren.
3. Das Gerät darf nur von ausgebildetem Personal installiert werden.
4. Das Hauptgerät ist festzuverdrahten und gemäß EN60950, 1992, Ausgabe 2, +A4, 1997, cl. 6.2.1.2 mit einem Erdleiter vom Hauptgeräterdanschluß zum Gebäude zu erden.
5. Der Hauptgerätschaltkreis SELVist mit dem Sicherungserdanschluß gemäß EN60950 cl. 2.5. verbunden
6. Die Hauptgerät ISA Bus Kontaktanschlüsse B1, B10, oder B31 (Randstecker auf CPU Grundplatine/Hauptplatine) MÜSSEN weniger als 0.1 Ohm zum Hauptgeräterdanschluß haben.



7. AltiGen entspricht den PCI Board Anforderungen Rev. 2.1 (5V 32-bit).
8. Der Energiebedarf für das Hauptgerät sowie aller Anschlußkarten im Hauptrechner, einschließlich von Zusatzgerät, darf die für das Hauptgerät spezifizierte Leistung nicht überschreiten.
9. Die in der folgenden Tabelle vorgesehenen Minimalwerte müssen für den Fall beachtet werden, daß mit der Einführung von zusätzlichen Karten riskante Stromspannungen entweder benötigt oder verursacht werden. Dabei gilt als riskant eine Spannung, die Spitzenwerte von 42.4V AC (Wechselstrom) oder 60V DC

(Gleichstrom) überschreitet. Im Zweifelsfalle ist ein zuständiger Ingenieur zu Rate zu ziehen.

Abstand (mm)	Schlupf (mm)	Spannungseinheit für Gerät oder Zusatzkarten
2.0	2.4 (3.8)	Bis zu 50 Vrms oder Vdc
2.6	3.0 (4.8)	Bis zu 125 Vrms oder Vdc
4.0	5.0A (8.0)	Bis zu 250 Vrms oder Vdc
4.0	6.4 (10.0)	Bis zu 300 Vrms oder Vdc

Vor dem Einbau einer Haupt- oder Erweiterungskarte in den Hauptrechner , die Werte von 300V (rms or dc) überschreiten, ist der zuständige Sicherhaitsingenieur zu Rate zu ziehen.

Anderweitige Benutzung des Geräts, deren Ergebnis die Außerkraftsetzung der erteilten Genehmigung zum Betrieb des Geräts zur Folge hat, macht diese Genehmigung ungültig.

10. Für die folgenden AltiServ Plattformen — AltiServ1A-IP, AltiServ1E-IP, and Alti-Office 1B — überprüfen der Eingang Spannung Vorwählerschalter (115/230V) ist auf der Rückseite des Chassis und wird eingestellt auf die korrekte Spannung für Ihre Installation.

Power Failure

(Fallas en La Energía Eléctrica/Netzausfall)

In the event of a power failure, the first telephone extension on each card (except for the CD0012UD) is connected directly to the first exchange line, thus permitting access to dial the emergency services. This telephone must be powered from the PSTN or have local battery backup capable of calling the emergency services four hours after the power failure event occurs.

En caso de ocurrir una falla en la energía eléctrica, la primera extensión telefónica de cada tarjeta (salvo en lo que respecta a la CD0012UD), se conecta directamente a la primera línea de la central, para así permitir el acceso a la marcación de los servicios de emergencia. Este equipo debe alimentarse a partir del PSTN, o contar con un respaldo de batería local con capacidad suficiente para llamar a los servicios de emergencia, durante cuatro horas después de que ocurra la falla en la energía eléctrica.

Bei Netzausfall wird der erste Telefonanschluß jeder Karte (mit der Ausnahme von CD0012UD) direkt mit der Vermittlung verbunden und garantiert dadurch Zugang zu Notdiensten. Der Anschluß muß von PSTN, betrieben werden oder aber eine örtliche Notstromversorgung haben, die es ermöglicht, Notdienste bis zu vier Stunden nach dem Netzausfall anzurufen.

Wiring

(Cableado/Schaltung)

All wiring must conform to National Telecommunications Wiring Regulations and the National Electrical Wiring Regulations.

Todo el cableado deberá cumplir con las Normas Nacionales del Cableado para Telecomunicaciones y con las Normas Nacionales del Cableado Eléctrico.

Alle Schaltungen müssen den Nationalen Vorschriften für Fernmeldeschaltungen ("National Telecommunications Wiring Regulations") und den Nationalen Vorschriften für Elektroschaltungen ("National Electrical Wiring Regulations") entsprechen.

Additional Requirements for Australia

(Requisitos Adicionales para Australia/Zusätzliche Bestimmungen für Australien)

1. **Warning**: For safety reasons, connect only ACA or AUSTEL permitted or certified equipment to the telephone ports (RJ11) of the patch panel or the audio in/out jacks on the AltiServ card.
2. **Warning**: THIS EQUIPMENT MUST BE INSTALLED AND MAINTAINED ONLY BY SERVICE PERSONNEL

1. **Advertencia:** Por razones de seguridad, conecte solamente equipo permitido o certificado de ACA o AUSTEL a los puertos telefónicos (RJ11) del tablero de conexiones o a los conectores de entrada y salida de la tarjeta de sonido AltiServ.
2. **Advertencia:** ÚNICAMENTE EL PERSONAL DE MANTENIMIENTO DEBERÁ INSTALAR Y SUMINISTRAR MANTENIMIENTO A ESTE EQUIPO.

1. **Warnung:** Aus Sicherheitsgründen darf nur von ACA oder AUSTEL genehmigtes oder beglaubigtes Gerät an Telefonanschlüsse (RJ11) des Schaltplans oder die Audio EIN/AUS Buchsen der AltiServ Karte geschaltet werden.
2. **Warnung:** DIESES GERÄT DARF NUR VON WARTUNGSPERSONAL EINGEBAUT UND GEWARTET WERDEN.

Additional Requirements for USA and Canada

(Requisitos Adicionales para Los Estados Unidos y Canadá/Zusätzliche Bestimmungen für USA und Kanada)

1. CAUTION: To reduce the risk of fire, use only #26 AWG or larger (for example, 24 AWG) UL listed or CSA certified telecommunication line cord.
2. This trunk card must be fitted in host equipment with fire enclosures complying with the flammability requirements of sub-clause UL1950/CSA C22: 1995 4.4.3. In addition, the card must be separated from internal materials of flammability class or lower by at least 25 mm of air Class V-1 or better. Also, the card must be separated from openings in the top or sides of the enclosure by at least 25 mm of air or by a barrier of flammability Class V-1 or better unless the openings comply with one of the following:
   - not exceed 5 mm in any direction, or
   - not exceed 1 mm in width, regardless of length

3. Any holes in the chassis not conforming to the above should be covered with a metal perforated screen, with holes not exceeding 5 mm diameter, fixed internally.

1. PRECAUCIÓN: Para reducir el riesgo de incendio, utilice solamente #26 AWG o mayor (por ejemplo, 24 AWG) UL o de la médula certificación CSA línea de telecomunicación.
2. El armazón del equipo principal en el que se instale esta tarjeta troncal debe estar diseñado a prueba de incendios y cumplir con los requisitos de inflamabilidad que dispone el Párrafo 4.4.3 del Artículo 1995 del Código 22 de la UL1950/CSA5. Además, la tarjeta debe encontrarse alejada de materiales internos de clase inflamable, o por debajo, de por lo menos 25 mm de aire de la Clase V-1 o superior. También, la tarjeta debe encontrarse alejada de cualquier abertura superior o lateral de la cubierta, por lo menos mediante 25 mm de aire o a través de una barrera de inflamabilidad Clase V-1 o superior, salvo cuando las aberturas se apeguen a cualesquiera de los siguientes criterios:
   - No excedan de 5 mm en cualquier dirección, o
   - No excedan de 1 mm de ancho sin importar su longitud.
3. Cualquier orificio del chasis que no cumpla con las especificaciones anteriores deberá cubrirse con una malla metálica perforada, fija por dentro, cuyas perforaciones no deberán exceder de 5 mm de diámetro.

1. ACHTUNG: Um die Gefahr von Feuer, verwenden Sie nur #26 AWG oder größer (zum Beispiel 24 AWG) UL oder CSA zertifiziert Telekommunikations-Netzkabel.
2. Der Einbau der Hauptkarte im Hauptgerät muß feuerfest sein und den Entflammbarkeitserfordernissen des Untertitels UL1950/CSA C22: 1995 4.4.3 entsprechen. Zusätzlich muß ein Abstand von mindestens 25 mm und der Luftklasse V-1 zwischen der Karte und internen Materialien mit mindestens Entflammbarkeitsklasse bestehen. Weiterhin muß zwischen der Karte und Öffnungen auf der Oberseite und an den Seiten des Gehäuses ein Luftabstand von mindestens 25 mm oder aber eine Sperre von mindestens der Entflammbarkeitsklasse V-1 bestehen, es sei denn, die Öffnungen entsprechen folgenden Ansprüchen:
   - in allen Richtungen nicht größer als 5 mm, oder
   - nicht breiter als 1 mm, ungeachtet der Länge.
3. Alle Öffnungen im Gehäuse, die nicht den obigen Anforderungen entsprechen, sind mit einem perforierten Deckel zu schließen, dessen Löcher nicht größer sind als 5 mm im Durchmesser. Der Deckel muß von innen am Gehäuse angebracht werden.The interconnecting trunk line cord should be at least size 26AWG.

Instructions for Hardwired Earth Connection

(Instrucciones para El Cableado de La Conexión a Tierra/Anleitungen für festverdrahtete Erdanschlüsse)

1. A supplementary equipment earthing conductor is to be installed between the product or system and earth, that is, in addition to the equipment earthing conductor in the power supply cord.
2. The supplementary equipment earthing conductor may not be smaller in size (8 AWG minimum, recommend 6 AWG) than the unearthed branch-circuit supply conductors. The supplementary equipment earthing conductor is to be connected to the product

at the terminal provided, and connected to earth in a manner that will retain the earth connection when the power supply cord is unplugged. The connection to earth of the supplementary earthing conductor shall be in compliance with the appropriate rules for terminating bonding jumpers in Park K of Article 250 the National Electrical Code, ANSI/NFPA 70, and Article 10 of Part I of the Canadian Electrical Code, Part I, C22.1. Termination of the supplementary equipment earthing conductor is permitted to be made to building steel, to a metal electrical raceway system or to any earthed item that is permanently and reliably connected to the electrical service equipment earthed.

3. Bare, covered or insulating earthing conductors are acceptable. A covered or insulating earth conductor must have a continuous outer finish that is either green, or green with one or more yellow stripes.
4. Earthing conductor shall not run through steel conduit.

1. Deberá instalarse equipo complementario de conducción a tierra entre el producto o sistema y la tierra misma, esto es, además del conductor a tierra que el equipo tiene en el cordón de la fuente de alimentación.
2. El conductor de conexión a tierra del equipo complementario no podrá ser de dimensiones inferiores (mínimo calibre 8 AWG, se recomienda el calibre 6 AWG) a la dimensión de los conductores de alimentación sin conexión a tierra del circuito de la derivación. El conductor de conexión a tierra del equipo complementario deberá conectarse a los productos en la terminal que se proporciona y, conectarse a tierra, de tal manera en que la conexión a tierra se mantenga cuando el cordón de la fuente de alimentación se encuentre desconectada. La aterrizada del conductor a tierra complementario deberá cumplir con las reglas conducentes para la terminación de los conductores de empalme de conexión a tierra que señalan el Apartado K del Artículo 250 del Código Nacional Eléctrico; el Artículo 70 del ANSI/NFPA, y Artículo 10, apartado I del Código Eléctrico Canadiense, Apartado I, C22.1. Está permitido que la terminación del conductor a tierra del equipo complementario se realice al acero del edificio, a un sistema de conductos eléctricos o a cualquier artículo con tierra que se encuentre conectado en forma permanente y confiable al equipo de servicio eléctrico que se aterriza.
3. Se consideran aceptables los conductores sin aislante, recubiertos o con aislante. Los conductores revestidos o con material aislante deberán contar con un acabado exterior continuo de color verde, o verde con una o más franjas amarillas.
4. Los conductores de conexión a tierra no deberán tenderse a través de conductos de acero.

1. Sowohl Stromversorgungskabel als auch Gerät oder Anlage müssen geerdet sein.
2. Das Zusatz-Geräteerdungskabel darf nicht dünner sein als die ungeerdete Verzweigungsleitung (8 AWG minimum, empfohlen 6 AWG). Es ist mit dem dafür vorgesehenen Anschluß derartig zu verbinden, daß eine Erdung auch dann weiter besteht, wenn das Stromversorgungskabel aus dem Stecker gezogen ist. Die Erdung des Zusatzkabels muß den geltenden Bestimmungen für den Endanschluß von Metallbrücken im Teil K, Artikel 250 des Nationalen Elektrokodex, [in Park (?) K of Article 250 the National Electric Code], ANSI/NFPA 70, und Artikel 10, Teil I des Kanadischen Elektrokodex, Tei I, [and Article 10, Part I of the Canadian Electrical Code, Part I] C22.1entsprechen. Der Endanschluß des Zusatz-Geräteerdungskabels ist erlaubt sowohl an Baustahl, an Zuführungsbahnen oder an jedem Gegenstand, der auf Dauer und verläßlich mit geerdetem elektrischem Gerät verbunden ist.

3. Blanke, umhüllte oder isolierte Erdungskabel sind zulässig. Ein umhülltes oder isoliertes Erdungskabel muß eine durchgehend grüne Oberfläche, oder eine grüne mit einem oder mehreren gelben Streifen,
4. Erdleitungen dürfen nicht durch Stahlrohre führen.

UL Hardware Preparation

(Preparación del Equipo UL/Gerätevorbereitung gemäß UL (Underwriter's Laboratories, Inc.))

Prepare the hardware as follows ensuring that the relevant manufacturer's installation instructions are complied with. *If you have doubts about any of these, call your supplier.*

1. This apparatus must be professionally installed.
2. Select a "CE" computer chassis according to the Safety Requirements above, ensuring that it has an external marked earth point.
3. The host machine ISA bus pins B1, B10 or B13 MUST be tested to ensure that there is less than 0.1 Ohms to the earthing terminal.
4. The host machine PCI bus pins complies with PCI Board specifications Rev. 2.1 (5V 32-bit).
5. Prepare the chassis, in accordance with the PC manufacturer's instructions, to receive the necessary PC cards, ensuring the installation of extension cards does not result in non-conformance to the Safety Requirements above.
6. When installing a system using AltiGen's cards, note that the continued compliance to the LVD and EMC EU Directives at the system level is the responsibility of the system supplier.
7. Prepare above cards ensuring all jumpers are set according to the manufacturer's instructions.
8. Attach suitable grounded ESD wrist strap between wrist and earth.
9. Follow the manufacturer's instruction and install above cards into PC.

   Note: If more than three cards are using the MVIP, ensure that the board set as board zero is installed at one end of the MVIP cable and the board at the far end of the MVIP cable has its switch set to terminated (switch closed).
10. Replace PC outer case.
11. Connect a fixed earth from the PC to a suitable premises fixed earthing point. Note that the earth cable must be at least the same gauge as the live wire of the main cord and fixed to the earth terminal and the rear of the PC. (6 AWG recommended, 8 AWG minimum.)
12. Connect cable supplied with AltiServ to the "D-type sub-miniature" (25 pin) connector on the AltiServ card and the connector to the Modular RJ-11 Patch Panel.
13. Connect the building telecommunication wiring to the RJ-11 sockets.
14. Building telecommunication wiring should be installed according to the National Wiring Regulations for Telecommunications.

    UL File No. E179719

Preparación del Equipo UL

Prepare el equipo de la manera que se indica a continuación. Cerciórese de antemano de que se observan todas las instrucciones aplicables del fabricante. *Si tiene usted alguna duda acerca de cualesquiera de ellas, llame a su proveedor.*

1. La instalación de este aparato la deben realizar profesionales.
2. Seleccione el chasis "CE" de la computadora tomando en consideración los Requisitos de Seguridad que se indican anteriormente, además, cerciórese de que cuenta con un punto de conexión a tierra marcado en el exterior.
3. Las clavijas ISA de los canales de distribución B1, B10 o B13 DEBEN someterse a prueba, a fin de verificar que la corriente sea inferior de 0.1 ohmios hacia la terminal de la conexión a tierra.
4. Cerciórese de que las clavijas PCI de los canales de distribución cumplen con las especificaciones de los tableros PCI, Rev. 2.1 (5 voltios 32-bit).
5. Prepare el chasis de acuerdo con las instrucciones del fabricante de la computadora personal, para efectos de que reciba las tarjetas de PC que necesita, y se cerciore así de que la instalación de las tarjetas de extensión no redundará en la infracción de los Requisitos de Seguridad que se indican con anterioridad.
6. Observe que cuando instala un sistema que utiliza tarjetas AltiGen, el acatamiento continuo de las Directivas LD y EMC EU a nivel sistema, son responsabilidad del proveedor del sistema.
7. Prepare las tarjetas mencionadas con anterioridad y cerciórese de que todos los puentes de salto se encuentran posicionados conforme a las instrucciones del fabricante.
8. Coloque una pulsera antiestática ESD adecuadamente aterrizada entre la muñeca y la tierra.
9. Siga las instrucciones del fabricante e instale las tarjetas que se mencionan con anterioridad en la computadora.

   Nota: Cuando más de tres tarjetas utilicen el MVIP, cerciórese de que la placa de Cuanto o de Tritón establecida como placa cero se encuentre instalada en uno de los extremos del cable MVIP, y de que la placa en el otro extremo del cable MVIP tiene su interruptor en la posición de terminado (interruptor cerrado).
10. Reemplace la cubierta externa de la computadora.
11. Instale una conexión a tierra fija desde la computadora hasta un punto apropiado de conexión a tierra dentro de las instalaciones. Observe que el cable de puesta a tierra debe de ser, por lo menos, del mismo calibre que el cable con corriente viva del cordón principal y, que el mismo debe de encontrarse conectado a la terminal de aterrizada y a la parte posterior de la computadora. (Se recomienda el cable calibre 6 AWG, u 8 AWG, como mínimo).
12. Conecte el cable que se le suministra con la tarjeta AltiServ al conector sub-miniatura tipo D (25 clavijas) de la tarjeta AltiServ y el conector al Tablero de Conexiones del Modular RJ-11.
13. Conecte el cableado de telecomunicación del edificio a los enchufes del RJ-11.
14. El cableado de telecomunicación del edificio debe instalarse de conformidad con las Normas Nacionales de Cableado para Telecomunicaciones.

    Archivo de la Asociación de Aseguradores No. E179719

Gerätevorbereitung gemäß UL (Underwriter's Laboratories, Inc.)

Entsprechend den gegebenen Anleitungen des Herstellers ist das Gerät wie folgt vorzubereiten. *Im Zweifelsfalle ist der Lieferant zu benachrichtigen.*

1. Gerät darf nur von qualifiziertem Personal eingebaut werden.
2. Wählen Sie ein "CE" (communication electronics) Komputergehäuse entsprechend den oben angeführten Sicherheitsanforderungen mit einem an der Außenseite markiertem "Erd" Punkt.
3. Die ISA (International Standard Atmosphere) Kontaktanschlüsse B1, B10 oder B13 auf der Sammelschiene des Hauptgerätes sind zu testen um sicherszustellen, daß weniger als 0.1 Ohms zum Erdanschluß führen.
4. Die PCI (Program Controlled Interrupt) Kontaktanschlüsse auf der Sammelschiene des Hauptgerätes entsprechen den PCI Steckkartenanforderungen (PCI Board specifications) Rev. 2.1 (5V 32-bit).
5. Vor dem Einbau der entsprechenden PC (Personal Computer) Karten in das Gehäuse gemäß den PC Herstelleranweisungen ist sicherszustellen, daß durch den Einbau zusätzlicher Karten die oben genannten Sicherheitsansprüche nicht verletzt werden.
6. Beim Einbau einer Anlage mit AltiGen's Karten ist zu beachten, daß die ständige Übereinstimmung mit den LVD (Low Voltage -DC) und EMC (Electromagnetic Compatibility) EU Regeln auf Anlagenebene in den Verantwortungsbereich des Anlagenherstellers fällt.
7. Alle Drahtbrücken auf oben erwähnten Karten müssen den Anforderungen des Herstellers entsprechen.
8. Geeignetes geerdetes ESD (Electrostatic Device) Gelenkband zwischen Handgelenk und Erde verwenden.
9. Beim Einbau oben erwähnter Karten in den PC (Personal Computer) sind die Anordnungen des Herstellers zu beachten.
10. Anmerkung: Benutzen drei oder mehr Karten den MVIP (?- manual volume...?), ist sicher zu stellen, daß die als 0-Karte bezeichnete Karte an einem Ende des MVIP Kabels eingebaut ist, und daß der Schalter der Karte am anderen Ende des MVIP Kabel auf "geschlossen" (terminated-closed) steht
11. PC Gehäuse austauschen.
12. Anschluß zwischen einer festen Erdung am PC und einer geeigneten festen Erdung in der Räumlichkeit erstellen. Zu beachten ist, daß das Erdkabel zumindest die gleiche Stärke wie der unter Spannung stehende Draht des Hauptkabels hat und an den Erdanschluß und an den PC angeschlossen ist. (6 AWG empfohlen, 8 AWG minimum.)
13. Anschluß zwischen dem mit dem AltiServ gelieferten Kabel, dem "D-type sub-miniature" (25 pin-Kontaktanschlüsse) Stecker auf der AltiServ Karte und dem Stecker des modularen RJ-11 Steckfeldes erstellen
14. Anschluß zwischen der Gebäudefernmeldeschaltung und den RJ-11 Buchsen erstellen.
15. Gebäudefernmeldeschaltung gemäß National Wiring Regulations for Telecommunications ("Nationale Vorschriften für Fernmeldeschaltungen").

    UL Kartei No. E179719

Safety Instructions - Rack Mount Instructions

(Instrucciones de Seguridad - Instrucciones de Montaje en Rack/ Sicherheitshinweise - Rack Mount Anleitung)

1. **Elevated Operating Ambient** - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
2. **Reduce Air Flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
3. **Mechanical Loading** - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
4. **Circuit Overloading** - Consideration should be given to the connection of the equipment to the supply circuit and the effect that the overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
5. **Reliable Earthing** - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips).

Instrucciones de Seguridad - Instrucciones de Montaje en Rack

1. **Elevados de funcionamiento ambiente** - Si se instala en una temperatura ambiente cerrado o conjunto de múltiples unidades de rack, el funcionamiento del entorno de rack puede ser superior a Temperatura Ambiente. Por lo tanto, debe considerarse la posibilidad de instalar el equipo en un entorno compatible con la temperatura ambiente máxima (Tma) especificada por el fabricante.
2. **Reducir el flujo de aire** - Instalación del equipo en un armario debe ser tal que la cantidad de flujo de aire necesario para la operación segura del equipo no está en peligro.
3. **Carga mecánica** - El montaje del equipo en el armario debe ser tal que una situación de peligro no es debido a una carga mecánica irregular.
4. **La sobrecarga del circuito** - Deben tenerse en cuenta a la conexión del equipo al circuito de alimentación y el efecto que la sobrecarga de los circuitos podría tener sobre la protección de sobrecorriente y el cableado de alimentación. examen adecuado de la placa de identificación equipo debe ser usado para referirse a esta preocupación.
5. **Confiable puesta a tierra** - Tierra fiable del equipo montado en rack debe mantenerse. Se debe prestar especial atención a las conexiones de alimentación que no sean las conexiones directas al circuito derivado (por ejemplo, las regletas de distribución).

Sicherheitshinweise - Rack Mount Anleitung

1. **Erhoehte Betriebsumgebungstemperatur** - Wenn das Geraete in einen geschlossenen oder Multi-Unit-Rack-Montage installiert wird kann den Betriebsumgebungstemperatur des Rack-Umgebung groesser sein als der Umgebungstemperatur des Raumes. Deshalb sollten Sie der Installation des

Geraetes in einer Umgebung die kompatibel mit der maximalen Umgebungstemperatur (Tma) die vom Hersteller angegeben wird durchfuehren.

2. **Luftstrom reduzieren** - Installation des Geraetes in einem Rack sollte so erfolgen dass der Hoehe der Luftstrom fuer den sicheren Betrieb der Anlage nicht gefaehrdet wird.
3. **Mechanische Belastung** - Die Montage des Geraetes im Rack sollte so sein dass ein gefaehrlicher Zustand nicht erreicht wird auf Grund ungleicher mechanicher Belastung.
4. **Stromkreisüberlastung** - Beachten Sie wie Sie das Geraete an die Stromversorgung anschliessen. Ueberlastung der Schaltkreis kann ein Einfluss auf Ueberstromschutz und Speisestromkreisverkabelung haben. Angemessene Beruecksichtigung von der Bemessungsspannung laut den Typenschild des Geraetes sollte beim behandeln dieses Anleigen genommen werden.
5. **Zuverlässige Erdung** - Zuverlaessige Erdung der Rack-Montage-Geraete sollte beibehalten werden. Besondere Aufmerksamkeit sollten Stromanschluesse ausser die Direktanschluesse der Abzweigkreis gegeben werden (z.B. Verwendung von Mehrfachsteckdosen).

CHAPTER

2

Telephony Hardware Handling Requirements

This chapter details the following:

- Proper grounding procedures
- Using an uninterruptible power supply
- Operating environment
- Proper board handling procedures
- Proper system shutdown
- On-board battery

Proper Grounding and Loop Current

Proper grounding is **essential** for any PBX system. Run a #6 AWG wire from the server chassis to protection earth ground. Don't wait for a problem to arise before taking this step. Make sure this is one of the first things you do before turning the AltiGen system on.

For more information on grounding and loop current issues, please refer to the Knowledgebase at AltiGen's dealer web site at **https://dealer.altigen.com.**

Uninterruptible Power Supply (UPS)

Using a UPS prevents power fluctuations and surges on power sources from utilities. Windows files can be corrupted as a result of power failure or improper system shutdown.

Caution! **Corrupted files may not be repairable** and may require re-installation of Windows and MAX Communication Server. To protect your system from surges and power outages, it is strongly recommended that an adequate UPS (providing between 600VA and 1500VA) and power surge protector is used with the system.

Operating Environment

(Condiciones Ambientales de Operación/Betriebsbedingungen)

Before you set up and use the system, consider the environment in which the system will reside:

- Choose a work surface large enough to accommodate the entire system.
- Use a flat, stable work surface with enough space around it for proper air circulation. For proper heat dissipation, a fan is recommended in front of the AltiGen telephony boards to ensure sufficient airflow. Be sure the fan filter is clean and does not block the airflow.
- Always work with grounded equipment and fixtures. The use of an ESD mat (to dissipate static) and grounding wrist/foot straps is necessary.

In the manual assembly process, boards must be removed from the anti-static bag and placed gently on a dissipative workstation mat, so that they become discharged safely before being touched. The dissipative mat should have a rubber upper layer and conductive bottom layer. Regular cleaning of the mat should be done using an anti-static mat cleaner.

The following table contains the operating specifications for the AltiGen telephony board.

Table 1. AltiGen Board Operating Environmentals

Description	Specification
Operating Temperature	0° to + 40° C
Storage Temperature	-20° to +70° C
Relative Humidity	10% to 80% non-condensing

Condiciones Ambientales de Operación

Antes de Montar y utilizar el sistema, considere el medio ambiente en el que dicho sistema residirá:

- Selecciones un espacio de trabajo lo suficientemente amplio para dar cabida a la totalidad del sistema.
- Utilice una superficie de trabajo plana y estable, con suficiente espacio alrededor para que pueda darse una adecuada circulación del aire. Se sugiere la colocación de un ventilador frente a las tarjetas de telefonía AltiGen, con objeto de disipar el calor adecuadamente y garantizar un flujo de aire suficiente. Cerciórese de que el filtro del ventilador se encuentra limpio y de que no obstruye el flujo del aire.
- Trabaje siempre con equipo y aditamentos con conexión a tierra. Es necesario utilizar un tapete ESD (para disipar la estática) y pulseras/tobilleras de aterrizada.
- Durante el proceso de ensamble manual, las tarjetas deben retirarse de la bolsa antiestática y colocarse suavemente sobre el tapete dispersivo de la estación de trabajo, de tal manera en que éstas se descarguen en forma segura, antes de que las toquen. El tapete dispersor debe contar con una capa superior de caucho y una capa inferior c. El tapete debe limpiarse en forma regular utilizando un limpiador para tapetes antiestática.

La tabla siguiente contiene las especificaciones de funcionamiento para el tablero de la telefonía de AltiGen:

Descripcion	Specification
Temperatura de Operacion	0° a + 40° C
Temperatura de Almacenamiento	-20° a +70° C
Humedad Relativa	10% a 80% sin condensacion

Betriebsbedingungen

Vor Aufbau und Inbetriebnahme der Anlage müssen folgende Betriebsbedingungen berücksichtigt werden:

- Es ist eine Arbeitsfläche zu wählen, die der gesamten Anlage genügend Platz bietet.
- Die Arbeitsfläche muß flach und stabil sein und genügend Ream für eine entsprechend ausreichende Ventilation bieten. Zum angemessenen Hitzeverlust und ausreichender Luftzufuhr wird der Einbau eines Ventilators vor den AltiGen Fernmeldekarten empfohlen. Der Filter des Ventilators muß sauber sein und darf die Luftzufuhr nicht blockieren.
- Es darf nur mit geerdetem Gerät gearbeitet werden. ESD Matten (zur Vermeidung von Statik) sowie geerdete Handgelenk- und Fußbänder sind dabei erforderlich.
- Beim Zusammenbau von Hand ist zu beachten, daß mit Karten nach der Entnahme aus einem anti-statischen Behälter vorsichtig umyugehen ist. Karten müssen dann zur elektrischen Entladung auf eine Dissipationsmatte am Arbeitsplatz gelegt werden, bevor sie berührt werden dürfen. Die Dissipationsmatte muß eine gummierte Oberseite und eine konduktive Unterseite haben. Beim regelmäßigen Reinigen der Matte muß ein antistatisches Reinigungsmittel verwendet werden.

Die folgende Tabelle enthält die funktionierenden Spezifikationen für das AltiGen Telephoniebret:

Beschreibung	Spezifizierung
Betriebstemperatur/	0° to + 40° C
Lagerungstemperatur	-20° to +70° C
Relative Luftfeuchtigkeit	10% bis to 80% nicht-verdichtend

Proper Board Handling Procedures

Handle boards by the edges only. Always hold the boards individually by the face plate (with the components facing you) and pinching the edge on the right side of the board. Do not make contact with the solder or component sides of the boards. Do not slide the boards over any surface, including an electrostatic discharge mat. Some boards have very sensitive ceramics that contain embedded traces. These traces are very close to the edge of the component and are easily chipped if they are hit against a hard object or surface.

Electrostatic Discharge (ESD) Warning

Electrostatic discharge is caused by static electricity. It can damage boards and may result in hard failures, early life failures, or cause a system to experience intermittent, erratic behavior. Always use an ESD kit when working on the telephony boards. The use of a special wrist strap or foot strap (to ground the wearer to the computer's case) reduces the risk of ESD damage.

Packaging for Shipment and Storage

- AltiGen telephony boards are packaged and shipped individually in fully closed, static-shielding bags. The pink anti-static foam should be used only as cushioning material — it is not static-dissipative and cannot discharge the boards.
- Always save and use the original packaging materials (foam, static-shielding bag, and cardboard box) to transport the boards.
- AltiGen telephony boards are protected by their anti-static bags and should be removed from their packaging for installation by a properly grounded technician.

Proper System Shutdown

Never turn off the AltiGen system without properly shutting down Windows first. Powering off the system using the power switch without going through the proper Windows shutdown procedure may corrupt the operating system.

On-Board Battery

The single-board computer on-board battery may need to be replaced. Make sure that the replacement battery is of the same type as printed on the battery that is being replaced.

Caution! There is a risk of explosion if the battery is replaced by an incorrect type.

Dispose of used batteries according to local laws.

CHAPTER

3

AltiGen Triton/Proton Telephony Boards

AltiGen's Triton/Proton family of telephony boards for the OFFICE series of servers is a PCI telephony board family. Triton/Proton boards have a non-blocking TDM switching matrix (256 x 64 kbps).

This chapter includes the following:

- Telephony board types and specifications
- Telephony board installation
- Power requirements table
- Station conference resources

Telephony Board Options

(Opciones de La Tarjeta AltiGen / AltiGen Kartenoptionen)

Table 1 lists the AltiGen telephony board modules. This selection allows you to optimize your system based on the trunk/extension mix required at your site.

La Tabla No. 2 lista los módulos de la tarjeta de telefonía AltiGen. Esta selección le permite optimizar su sistema con base en la mezcla de troncales y extensiones que requiere su sitio.

In Tabelle 2 sind AltiGen Kartenmodule für das Fernsprechwesen aufgelistet. Diese Auswahl erlaubt eine Optimierung ihrer Standortanlage mit der gewünschten Kombination von Haupt- und Nebenanschlüssen.

Table 1. AltiGen Telephony Board Options

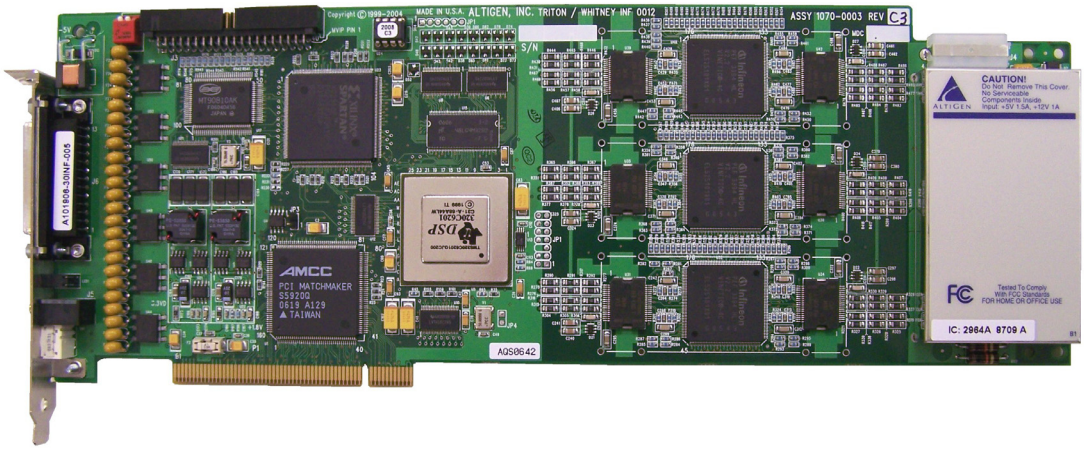
Board (Tarjeta/ Karte)	Model Number (No. de Modelo/Modell Nummer)	Description (Descripcion/ Beschreibung)
Triton	ALTI-TTAS-12-B	12 extensions (stations) extensiones (estaciones)/Nebenanschlüsse (Stationen)
Triton	ALTI-TTIP	12 G.711/723/729 trunks (troncales/Haupt or extensions/extensiones/Nebenanschlüsse), or 30 G.711
Triton	ALTI-CONF-30	30-Party MeetMe Conference
Triton	ALTI-T1E1-1	1 T1, 1 E1 or 1 PRI
Triton	ALTI-TTRS-12	12 ports for supervisor monitoring/barging in/ coaching, (12 puertos para monitoreo del supervisor/12 Stechanschlusse fur Monitor-Dienst), or 12x6 station conference
Triton	ALTI-TTAT-12GS	12 trunks (troncales/Haupt), ground start/loop start
Triton	ALTI-TTAT-12	12 trunks (troncales/Haupt), loop start only
Triton	ALTI-TTAT-8	8 trunks (troncales/Haupt), loop start only
Proton	ALTI-P0800	8 trunks (troncales/Haupt), loop start only

Functional Specifications of Telephony Boards

Following are the functional specifications of AltiGen telephony boards.

Triton Analog Extension Board

Part Number: ALTI-TTAS-12-B



Specifications

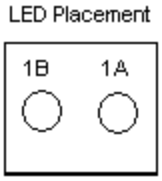
- Voice processing channels: 12
- Conversation recording channels: 12
- Message waiting signal: FSK

- On-Board telephony power supply:
  - Input 12Vdc from power connector
  - Output -24Vdc (talking battery) and 90Vac (ring voltage)

Note: When the board is configured to use an audio input port, the first port cannot be used for an extension.

Note: This board complies with Section 508 of the Rehabilitation Act of 1973. This includes compatibility with hearing aids, cochlear implants, assistive listening devices, and TTYs.

LED Status

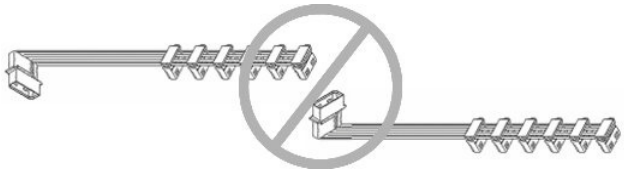


LED Indicators		
LED 1B	**LED 1A**	**Status**
ON	ON	5V is OK; 12V is OK – normal operation
OFF	OFF	Power cable not plugged in
ON	OFF	5V less than 4.5V but more than 3V – bad PC 5V power
OFF	ON	12V less than 9V – bad PC 12V power
LED 2, located near the 12V connector, is a red LED for diagnostic purposes. If it is ON, the fuse is blown.		

Warning:

- Do **not** use a "Y" splitter to connect two sets of power cables.

- Do **not** chain two sets of power cable together from a single power connector.



- Do **not** pull the cable when unplugging the power connector. This may damage the cable assembly. If it is too difficult to remove the plug from the power connector, please use pliers to remove the plug.

Triton Analog Trunk Board

Part Numbers

ALTI-TTAT-12 (12 Ports, Loop Start)

ALTI-TTAT-8 (8 Ports, Loop Start)

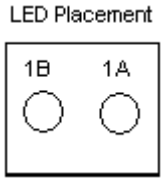
ALTI-TTAT-12GS (12 Ports, Ground Start)

Specifications

- Voice processing channels: 12
- Conversation recording channels: 12
- Compliant with EIA464
- Tone detection for fax tone, modem tone, and voice
- E-911 CAMA trunk support

LED Status

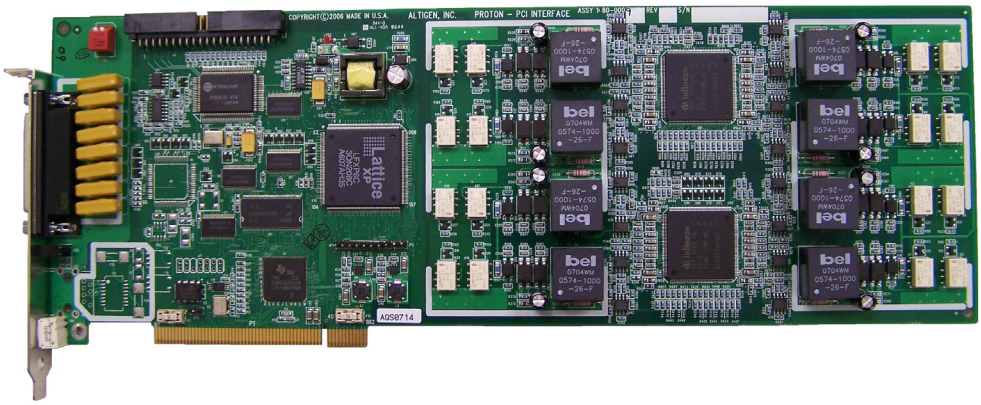
LS/GS LED Indicators*			LS LED Indicators		
LED 1B	**LED 1A**	**Status**	**LED 1B**	**LED 1A**	**Status**
ON	ON	Normal	ON	ON	Normal
OFF	OFF	No power to board	OFF	OFF	No +5V or less than 4.1V
ON	OFF	No +5V or less than 4.1V			
OFF	ON	No +12V or less than 9.2V			
**LED 2, located on the board, is a red LED for diagnostic purposes. If it is ON, the fuse is blown.*					



Proton Analog Trunk Board

Part Number

ALTI-P0800 (8 Ports, Loop Start)



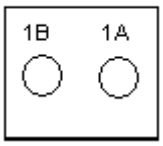
Specifications

- Voice processing channels: 8
- Conversation recording channels: 8
- Compliant with EIA464
- Tone detection for fax tone, modem tone, and voice
- E-911 CAMA trunk support

LED Status

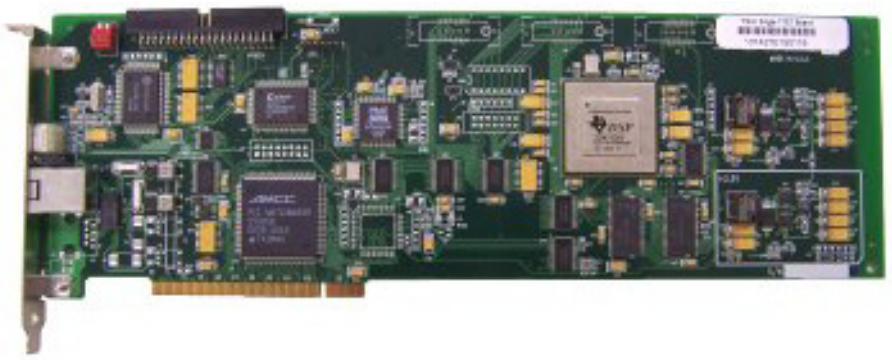
LS LED Indicators		
LED 1B	**LED 1A**	**Status**
ON	ON	Normal
OFF	OFF	No +5V or less than 4.1V

LED Placement



Triton T1E1/PRI Board

Part Number: ALTI-T1E1-1



Specifications

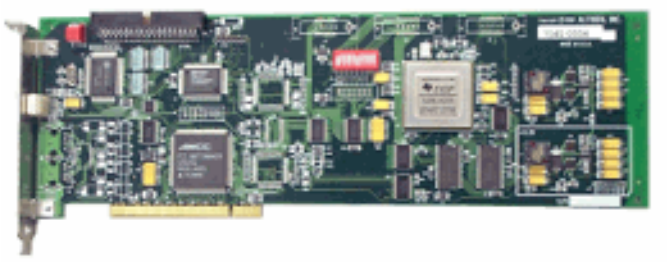
- Support T1-CAS, T1 PRI, E1-R2, E1 PRI signaling
- Voice processing channels: 24 (T1) or 30 (E1)
- Conversation recording channels: 24 (T1) or 30 (E1)
- Tone detection

LED Status

LED Indicators		
Green LED	Red LED	Status
OFF	OFF	No power
ON	OFF	Normal operation
OFF	ON	No signal
ON	Flashing	Faulty signal with frame synchronization*
OFF	Flashing	Faulty signal without frame synchronization
Alternating	Alternating	Frame slips in normal operation
*Faulty signals include the following: yellow alarm, bipolar violation, or frame error.		

Triton VoIP Board

Part Number: ALTI-TTIP



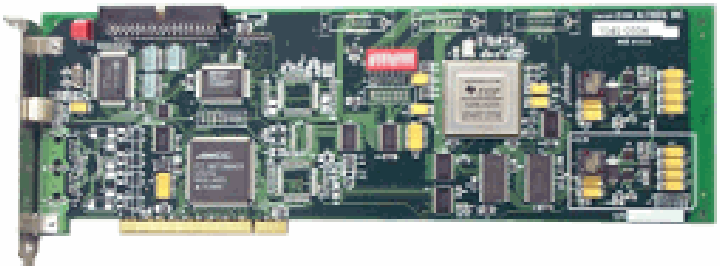
Specifications

- Codec options: Configurable 12 G.711/G.723.1/G.729 or 30 G.711
- Voice processing channels: 12 or 30 matching Codec configuration
- Conversation recording channels: 12 or 30 matching Codec configuration
- Echo cancellation
- Gain control

Triton Resource Board

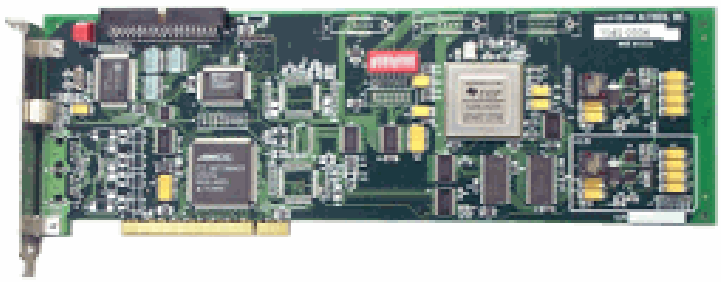
Part Number: ALTI-TTRS-12

The Triton Resource board enables call center supervisors to barge in to, silently listen to, or coach an agent's conversations. Up to two Resource boards can be installed in one system. Up to 12 simultaneous supervisor barge-in/listen/coach sessions are supported for each board.



Triton 30-Party MeetMe Conference Board

Part Number: ALTI-CONF-30



Specifications

- Maximum MeetMe conference sessions: 10
- Maximum conference participants for all sessions: 30
- Echo cancellation
- Mute control
- Announce participant's name when joining or leaving conference

Telephony Board Installation

Setting Physical Board ID

Before you install a telephony board into a system, it is important you set the Board ID correctly so that the system can recognize the board. You should not have duplicate Board IDs for the same type of board. There are six different types of boards. Each type of board has its own set of board IDs.

- Triton Analog board (ALTI-TTAT-12, ALTI-TTAT-8, ALTI-TTAS-12): ID range 0-15
- Proton Analog Board (ALTI-P0800): ID range 0-15
- Triton T1/PRI board: ID range 0-7
- Triton VoIP board: ID range 0-9
- Triton Resource board: ID range 0 or 1
- Triton Meet-Me Conference board: ID 0

Attaching Cables to the Telephony Boards

After all telephony boards are installed to the system, attach the 40-Pin MVIP bus ribbon cable to the boards.

- Be careful to make sure pins in the MVIP connector on the board line up with the sockets on the MVIP cable. Failure to do so may damage the pins and cause voice quality issues.
- If an ALTI-TTAS-12 board is installed, you need to attach the power cable to a 4-pin server power connector and to the board.

Terminating MVIP Bus

No matter what type of boards you have in the system, always terminate both ends of the CT (MVIP) bus.

Do not have any board terminated in the middle of MVIP bus. It will cause a clocking error and unpredictable voice quality.

Always run the CT-Bus Test Tool when you add a new board to the system.

For complete instructions on how to install telephony boards, please refer to the *Quick Installation Guide*, which is provided with every AltiGen telephony board package.

Limitations

The next table shows the maximum number of each type of board that can be installed in one system.

Table 2. Maximum Boards in One System

Board Type	Max. in a System	Total Ports
Triton VoIP configured as 12-port	10	120
Triton VoIP configured as 30-port	4[a]	120
TOTAL Triton VoIP boards	10	120 max in one system, via any combination of boards that complies with the system limitations shown here
Triton Conf 30-Party	1	10 conference bridges, 30 conference members
Triton Analog Trunk	16	192
Proton Analog Trunk	16	128
Triton Analog Extension	16	192
Triton T1/E1/PRI	8	192 (T1), 240 (E1)
Triton Resource	2	24 sessions

a. Requires 3GHz CPU w/Hyperthreading

Power Requirements

(Requisitos de Energía Eléctrica/Energiebedarf)

The power requirements are as follows for *each* individual board:

Los requisitos de energía eléctrica son los que se indican a continuación para cada tarjeta individual/Die folgende Tabelle zeigt den Energiebedarf jeder einzelnen Karte an:

Table 3. Individual Board Power Requirements

Board/Tarjeta/Karte	**+3.3V**	**+5V**	**+12V**	**Slot Type/Tipo Ranura/Steckplatz**
Triton Analog Extension	0	1.6A	1.4A[a]	PCI
Triton Analog Trunk LS/GS	0	1.6A	0.25A	PCI
Triton Analog Trunk LS	0	1.6A	0	PCI
Proton Analog Trunk LS	1.6A	0.6A	0	PCI
Triton VoIP	0	1.6A	0	PCI
Triton T1/PRI	0	1.6A	0	PCI
Triton T1/E1 PRI	0	1.6A	0	PCI
Triton Resource	0	1.6A	0	PCI
Triton Conf 30-Party	0	1.6A	0	PCI

a. 1.4A@12V is provided by power connector.

Station Conference Resource Limits

The next table defines station conference resource limits for boards used in a MAX Communication Server system.

Table 4. Station Conference Resource Limits

Board	**Max. Number of Conference Sessions** (Bridge)	**Max. Number of Members per Session** (Internal Extensions and External Parties)	**Max. Number of Total Conferenced Parties**
Triton Analog Extension	3	6	18
Triton Analog Trunk	0	0	0
Proton Analog Trunk	0	0	0
Triton VoIP 12 Port	2	6	12
Triton VoIP 30 Port	2	6	12
Triton T1/PRI	0	0	0
Triton Resource	12[a]	up to 6	36
Triton Conf 30-Party	10[b]	30	30

a. The Triton Resource board can support up to 12 conference bridges with up to 6 members each. However, this does not imply that you can have a total of 72 conferenced members (external + internal) per board, as it only has 36 conference resources.
b. The Triton 30-party conference board provides conference resources for the MeetMe conference application exclusively. It cannot be used for regular conferences.

CHAPTER

4

AltiGen MAX1000/MAX2000 Telephony Boards

AltiGen's MAX1000/MAX2000 family of telephony boards for the MAX all-in-one IP PBX solution comprises the following:

- MAX1000 system
- MAX1000-R system
- MAX2000 System

This chapter discusses the MAX1000 in detail. The information on the MAX1000 pertains to the MAX1000-R and MAX2000 systems, as well, except where support is enhanced in the latter two and is so noted in those sections at the end of the chapter. The MAX1000-R is an enhanced version of the MAX1000, and the MAX2000 system is an enhanced version of the MAX1000-R.

MAX1000 System

The AltiGen MAX1000 is a 2U, 19" rack-mount system. It is designed to be an all-in-one IP PBX solution to provide IP media path, PSTN interface access, and signaling exchange. The system has the following embedded components:

- Intel-based CPU board with DDR RAM, 10/100 Ethernet, USB2.0, COM/LPT, VGA, ATA-100 HDD, and CD-ROM
- DSP processor board
- MAX backplane for access board connection

- Two access board slots

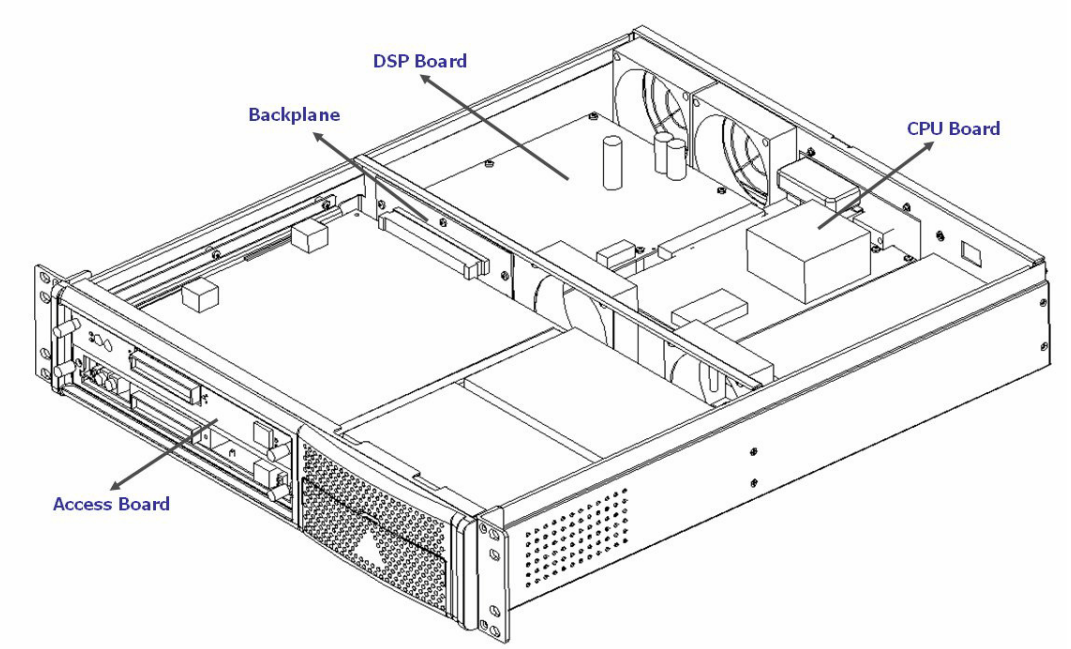


Figure 1. MAX1000 system overview

The embedded DSP board provides the following resources for the system:

- 30 VoIP codec channels (G.711/G.723.1/G.729AB) for IP phone
- IP Tie-trunk, and SIP trunk service
- Dedicated voice processing (VM/AA) and voice recording resource for every trunk, extension, VoIP channel
- 2 extension-based conference bridges (6 parties per conference)
- 2 MeetMe conference bridges (total 12 members maximum)
- 2 silent monitor/barge-in/coach channels for workgroup supervisor
- Music on hold (input source can be either a file or audio-in port)
- Paging (IP paging, audio-out port, trunk/station port paging)

MAX1000 Series Access Boards

An access board works together with the main DSP board to provide the telephony interface such as analog extension, analog trunk, and digital trunk (T1/E1/PRI).

The MAX series of telephony access boards consists of the following options:

- ALTI-M0404-T1E1 (4 analog trunks, 4 analog extensions, 1 T1/E1/PRI port)
- ALTI-M0804 (8 analog trunks, 4 analog extensions)
- ALTI-M0408 (4 analog trunks, 8 analog extensions)
- ALTI-M0012 (0 analog trunks, 12 analog extensions)
- ALTI-M0000-T1E1 (single T1/E1/PRI) (supported in MAX Communication Server 6.0 Update 1 and above)

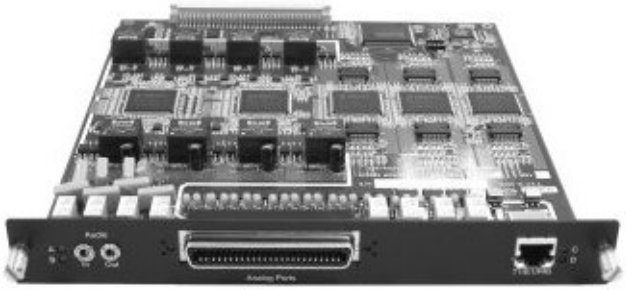


Figure 2. ALTI-M0404-T1E1 access board

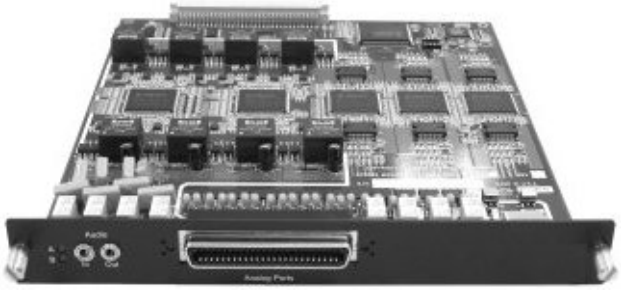


Figure 3. Analog trunk and extension board (ALTI-M0804, ALTI-M0408, ALTI-M0012)

Analog Trunk-to-Extension Relay

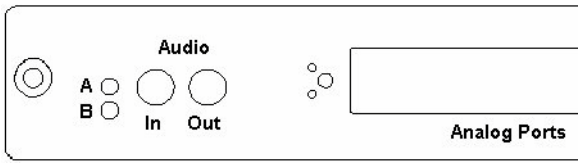
The following three access boards have an analog trunk-to-extension relay feature:

- ALTI-M0404-T1E1
- ALTI-M0804
- ALTI-M0408

The first four analog trunk ports will be connected to the first four analog extension ports when the system is shut down for maintenance or if power is lost.

Access Board Status LEDs

The MAX1000 access board has two green LED indicators (A & B) to show the switch software control and telephony power supply status. The LED A and B are located at the left hand side of the Access Board.



LED A	Status
ON	The embedded DSP board is running and access board is connecting to the DSP board properly. Normal operation is ON.

LED A	Status
OFF	One of the following is true: • The embedded DSP board is not running. • Access board is not connected to DSP board properly. • DSP board is too busy. Voice signal may be impacted.

LED B	Status
ON	The telephony power supply on the DSP board is supplying telephony power to the analog extension ports properly. Normal operation is ON.
OFF	One of the following is true: • Switching software is not running. • The telephony power supply fails to supply power.

T1E1 Signal Status LEDs

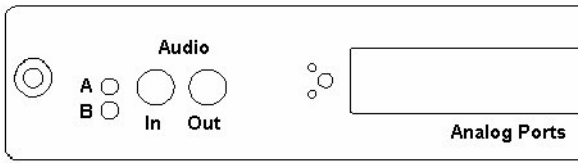
The ALTI-M0404-T1E1 board has two LEDs to show the T1/E1 signal status. The green LED is labeled "C" and the red LED is labeled "D".

LED C (Green)	LED D (Red)	Status
ON	OFF	Normal operation
OFF	ON	No signal
On	Flashing	Frame synchronization is okay, but one of the following errors has occurred: • Bi-polar violation • Line code violation • System is receiving Yellow alarm from CO • System is receiving Red alarm from CO • Excessive zeros detected.

LED C (Green)	LED D (Red)	Status
OFF	Flashing	Frame synchronization failed due to one or more of the following conditions: Wrong frame type Wrong line code Clock not matched, causing massive frame slips Cable between CSU and T1 port is too long (within 110 feet is recommended) CRC checksum error (E1)
Alternating		Temporary frame slip in normal operation
OFF	OFF	No power to the board

Audio Input and Output Port

Each access board has one audio input port (3.5mm) for connecting a music-on-hold device; and one audio output port for connecting a paging device.



Please note the following:

- Only one audio input/output source is supported per system.
- The first extension port is shared with audio input/output port (Rx/Tx). Do not wire an analog phone to the first extension port when one of the audio ports is activated.

Installing Access Boards

To install an access board,

1. Power off the system.
2. Slide the access board into the slot and align it with the card guide.
3. Push the board in completely.
4. Tighten the thumb screws on both sides in a synchronized manner.

Figure 4. Access board installation

Removing Access Boards

To remove an access board,

1. Shut down the AltiGen switching services (from MaxAdmin, choose **Services > Shut Down All Services**).
2. Shut down the operating system.
3. Power off the system.
4. Turn both thumb screws counter clockwise to disconnect from the chassis.
5. Pull both thumb screws to move the board out.

Wiring Specification

The 50-pin Telco connector (RJ-21X) on the access board requires a standard Telco cable (Male-to-Male) to connect to a punch down block (66 Block) or a 24-port patch panel. Refer to the following pinout specification when wiring punch down block or patch panel to CO trunk or phones.

Patch Panel	50-Pin Telco	66 Block	MAX Access Board Type			
Port/Pair	Ring-Tip	Pin Number	M0404-T1E1	M0408	M0804	M0012
1	01-26	01-02	Trunk1	Trunk1	Trunk1	
2	02-27	03-04	Trunk2	Trunk2	Trunk2	
3	03-28	05-06	Trunk3	Trunk3	Trunk3	
4	04-29	07-08	Trunk4	Trunk4	Trunk4	
5	05-30	09-10			Trunk5	
6	06-31	11-12			Trunk6	
7	07-32	13-14			Trunk7	
8	08-33	15-16			Trunk8	
9	09-34	17-18				
10	10-35	19-20				
11	11-36	21-22				
12	12-37	23-24				
13	13-38	25-26	Extension1	Extension1	Extension1	Extension1
14	14-39	27-28	Extension2	Extension2	Extension2	Extension2
15	15-40	29-30	Extension3	Extension3	Extension3	Extension3
16	16-41	31-32	Extension4	Extension4	Extension4	Extension4
17	17-42	33-34		Extension5		Extension5
18	18-43	35-36		Extension6		Extension6
19	19-44	37-38		Extension7		Extension7
20	20-45	39-40		Extension8		Extension8
21	21-46	41-42				Extension9
22	22-47	43-44				Extension10
23	23-48	45-46				Extension11
24	24-49	47-48				Extension12
25	25-50	49-50				

System Limitation for MAX1000

- Each MAX1000 system can support only one ALTI-M0404-T1E1.

MAX1000-R System

The MAX1000-R system is similar to the MAX1000 system described above, except that it supports *two* ALTI-M0404-T1E1 spans.

In addition, there are differences in the system resources provided by the embedded DSP board. In the MAX1000-R, the DSP board supports:

- Up to 96 extensions
- 6 extension-based conference bridges—6 parties per conference, with a maximum of 24 parties at any one time
- Up to 12 G.723/G.729/G.711 IP channels and 48 G.711-only IP channels
- Extension recording but not trunk recording

Additional Hardware

The MAX1000-R hardware differs from MAX1000 hardware in the following ways:

- Supports two ALTI-M0404-T1E1 spans, instead of one

  Note: When you are using two T1 or E1 spans, and one is used as a back-to-back tie trunk and the other is a live CO line, the live T1 or E1 line must connect to the top slot.

  Note: When *no* T1/E1 or *one* T1/E1 board is installed, you can select:

  - 30 G.723/G.729/G.711 IP channels, OR
  - 12 G.723/G.729/G.711 IP channels plus 48 G.711-only IP channels

  When *two* T1/E1 boards are installed, the configuration will switch to 12 G.723/G.729/G.711 IP channels and 48 G.711-only IP channels automatically.
- SATA RAID controller
- Supports SATA RAID1 with 80GB hard disk
- 1GB RAM

System Limitation for MAX1000-R

- Trunk recording is not supported. Only extension recording is supported.

MAX2000 System

The MAX2000 system uses the same DSP board and supports all the same analog and digital access boards as the MAX1000 and MAX1000-R.

The MAX2000 hardware differs from the MAX1000 hardware in the following ways:

- Hot swappable power supply (2x250W)
- Hot swappable RAID1 with 2x80GB hard disk
- Pentium Processor
- 1GB RAM
- Supports two ALTI-M0404-T1E1 spans, instead of one

The MAX2000 system is manufactured with two different DSP configurations, MAX2000 standalone server and MAX2000iG:

- **MAX2000 Server**—In *standalone server* mode, the MAX2000 Server supports the same software features and uses the same firmware as the MAX1000-R.

  When *no* T1/E1 or *one* T1/E1 board is installed, you can select:

  - 30 G.723/G.729/G.711 IP channels, OR
  - 12 G.723/G.729/G.711 IP channels plus 48 G.711-only IP channels

  When *two* T1/E1 boards are installed, the configuration will switch to:

  - 12 G.723/G.729/G.711 IP channels and 48 G.711-only IP channels

  Note: In the event that the installation site grows beyond the supported user size and you would like to migrate to HMCP Softswitch architecture, the MAX2000 standalone server can be configured in gateway mode. The embedded DSP will be changed to support the codec listed in MAX2000iG.

- **MAX2000iG**—in *gateway* mode, the embedded DSP supports:
  - 12 combo codec plus 56 G.711 codec
  - Two T1/E1 4x4 access boards or any combination of two access boards

  Note: The MAX2000iG cannot be used as a standalone server. The embedded DSP is hard coded as gateway only.

System Limitation for MAX2000 System

- Trunk recording is not supported. Only extension recording is supported.

CHAPTER

5

MAX4000 Server and Vision Boards

AltiGen's MAX4000 chassis is designed to operate either as a gateway controlled by a Softswitch server or as a standalone IP PBX.

This chapter describes the MAX4000 in detail.

MAX4000 Server

The AltiGen MAX4000 is a 4U, rack-mount system, 7" x 17 ½" x 27". The system has the following embedded components:

- Field-replaceable processor module
    - 2.4 GHz processor
    - 4GB memory
    - 2 10/100/1000 Mbps Ethernet interfaces
    - VGA port
    - PS2 port for keyboard and mouse
    - USB 2.0 port
- 8 access board slots
- 3 hot-swappable SATA hard drives used as RAID-1 with standby drive
- 2 + 1 redundant power supply
- CD-DVD ROM
- A second USB 2.0 port (located inside the front door)

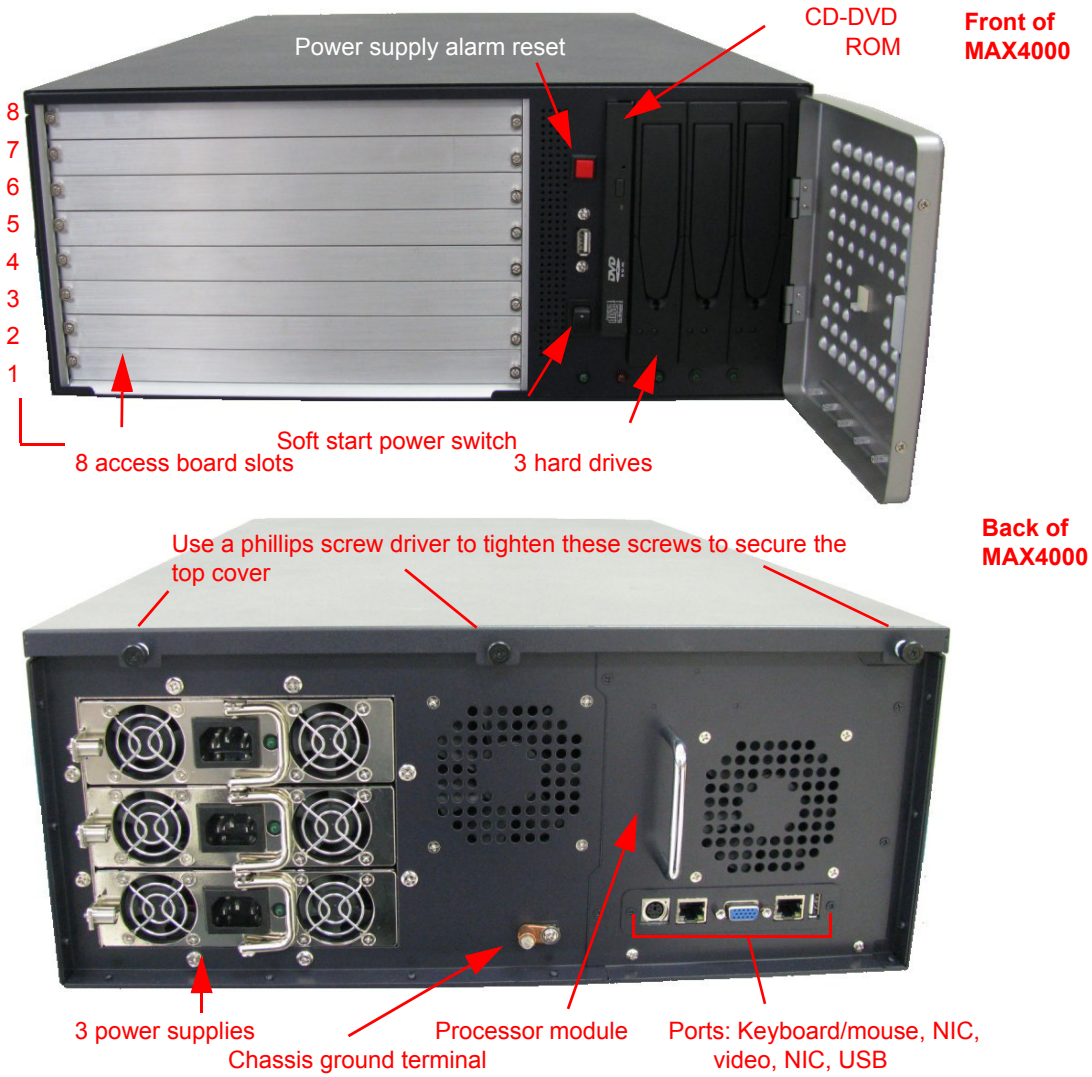


Figure 1. MAX4000 system overview

Vision Access Boards

The MAX4000 series of Vision access boards includes the following options:

- ALTI-V0404 (Vision 4 Trunk 4 Ext Analog Board with 8 Combo Codec)
- ALTI-VRES (Vision Resource Board)
- ALTI-VT1E1-2 (Vision T1/E1 Board with 2 T1/E1 Ports and 60 Combo Codecs)

Board Status LEDs

MAX4000 boards have a red LED at the top right and a blue LED at the bottom right to show board status.

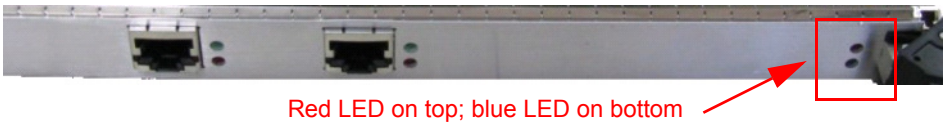


Figure 2. Red and blue LEDs show board status

Red LED	Status
ON	Either the board is not seated properly (extractor switch is not at the correct position), or the on-board power has a problem. When the red LED is on, the blue LED will be off.
OFF	Normal operation is OFF.

When the red LED is OFF, the blue LED will be in one of the following states:

Blue LED	Status
FLASHING	The board is either: • successfully plugged in and ready to be activated in MaxAdmin, OR • the board is deactivated and ready to be removed.
ON	The board is activated.
OFF	The board is not plugged in, or the red LED is on.

T1E1 Access Board

Figure 3. ALTI-VT1E1-2 Board with 2 T1/E1 Ports and 60 Combo Codecs

T1E1 Signal Status LEDs

The ALTI-VT1E1SM-1PT/ALTI-VT1E1-2 board has two LEDs to show the T1/E1 signal status. They are located beside each RJ48C connector.

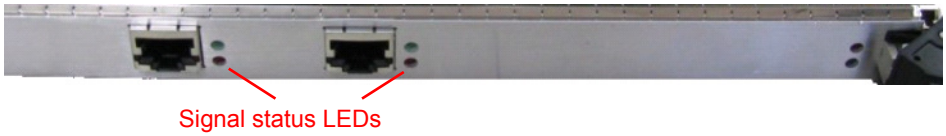


Figure 4. LEDs showing signal status

Green LED	Red LED	Status
ON	OFF	Normal operation
OFF	ON	No signal
ON	Flashing	Frame synchronization is okay, but one of the following errors has occurred: • Bi-polar violation • Line code violation • System is receiving Yellow alarm from CO • System is receiving Red alarm from CO • Excessive zeros detected
OFF	Flashing	Frame synchronization failed due to one or more of the following conditions: Wrong frame type Wrong line code Clock not matched, causing massive frame slips Cable between CSU and T1 port is too long (within 110 feet is recommended) CRC checksum error (E1)
Alternating		Temporary frame slip in normal operation
OFF	OFF	No power to the board

Resource Board

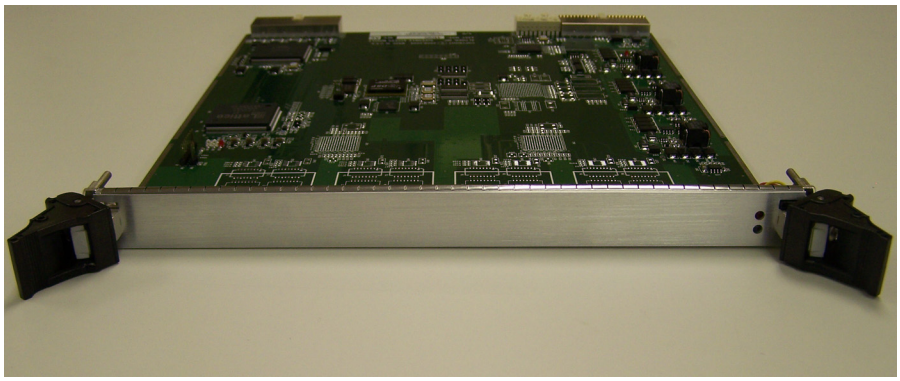


Figure 5. ALTI-VRES (resource board)

The MAX4000 resource board supports two configurations:

Configuration A

- 60 G.711 IP resource channels
- 40 Station Conference bridges with maximum 6 members in each bridge; 120 maximum total members
- 10 silent monitor/barge-in/coaching sessions
- 10 MeetMe bridges with maximum 30 members in each bridge; 30 maximum total members

Configuration B

- 60 G.711 IP resource channels
- 20 Station Conference bridges with maximum 6 members in each bridge; 60 maximum total members
- 30 silent monitor/barge-in/coaching sessions
- 10 MeetMe bridges with maximum 30 members in each bridge; 30 maximum total members

One system can have multiple resource boards but only one resource board can be configured to use the MeetMe feature.

Analog Boards

The analog access boards have an analog trunk-to-extension relay feature. The first four analog trunk ports will be connected to the first four analog extension ports when the system is shut down for maintenance or if power is lost.

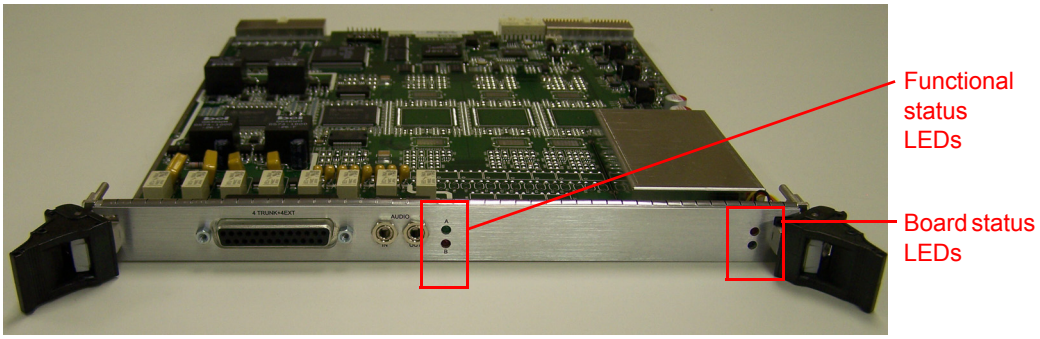


Figure 6. ALTI-V0404 (4x4 analog board)

Analog Functional Status LEDs

The analog boards have two LEDs to show functional status. Their location is shown in Figure 6 and Figure .

LED A (Green)	Status
ON	Normal operation. The +12v fuse is okay, and the analog telephony power is on.

LED B (Red)	Status
ON	Either the +12v fuse is blown, or the analog telephony power is off. When the red LED is on, the green LED will be off.
OFF	Normal operation is OFF.

Audio Input and Output Ports

Each analog access board has:

- one audio input port (3.5mm) for connecting a music-on-hold device
- one audio output port for connecting a paging device

You may not use *both* audio ports on any single access board. You may use the audio input port on one access board and the audio output port on another access board.

Please note the following:

- Only one audio input/output source is supported per system.
- The first extension port is shared with audio input/output port (Rx/Tx). Do not wire an analog phone to the first extension port when one of the audio ports is activated.

Wiring Specification

The 25-pin DB-25 connector on the access board requires a cable (DB-25 to RJ-21x) supplied with the access board to connect to a punch down block (66 Block) or a 24-port patch panel. Refer to the following pinout specification when wiring punch down block or patch panel to CO trunk or phones.

Patch Panel Port/Pair	50-Pin Telco Ring-Tip	66 Block Pin Number	MAX4000 Vision Board ALTI-V0404 J1 (4x4)
1	01-26	01-02	Trunk1
2	02-27	03-04	
3	03-28	05-06	Trunk2
4	04-29	07-08	
5	05-30	09-10	Trunk3
6	06-31	11-12	
7	07-32	13-14	Trunk4
8	08-33	15-16	
9	09-34	17-18	
10	10-35	19-20	
11	11-36	21-22	
12	12-37	23-24	
13	13-38	25-26	
14	14-39	27-28	
15	15-40	29-30	
16	16-41	31-32	
17	17-42	33-34	Extension1
18	18-43	35-36	
19	19-44	37-38	Extension2
20	20-45	39-40	
21	21-46	41-42	Extension3
22	22-47	43-44	
23	23-48	45-46	Extension4
24	24-49	47-48	
25	25-50	49-50	

Installing Boards

Slots 1 and 2 are special in the way the system is synched to the external clock of the incoming T1/E1 streams; this is critical to system operation.

Guidelines for installing boards:

- When adding boards, always work your way up from the bottom slot (slot 1) to the top slot (slot 8).
- If there is only one T1/E1 board in the system, it must be inserted into slot 1.
- If there are two T1/E1 boards in the system, then they must occupy slots 1 and 2.
- If there are more than two T1/E1 boards, then two of them must occupy slots 1 and 2; the remaining ones can occupy any of the remaining 6 slots.
- If you start with a single T1/E1 board, and later acquire a second T1/E1 board, then the first board should remain in slot 1, and the new T1/E1 board must replace whichever board originally occupied slot 2.

To install a board,

1. Power off the system.
2. Insert the board into the slot you chose, being careful to align the bottom of the board with the card guides in the bottom of the slot.

   The extractor handles on the board should be in the unlocked, or open, position (pointing outwards).

   Push the board all the way in until the extractor handle grooves capture the side beams of the slot, and use your thumbs to push the extractor handles in toward the center to lock the board into place.

   When the board is correctly plugged in, the blue light in the faceplate begins to blink, and the red light is off.

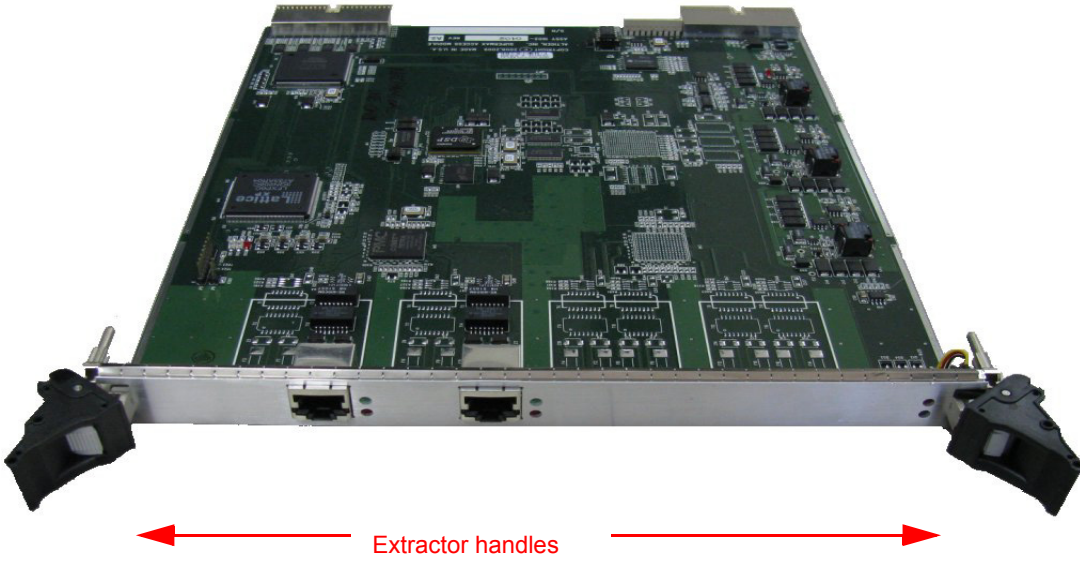


Figure 7. ALTI-VT1E1-2 board

Removing Boards

1. Shut down the AltiGen switching services (from MaxAdmin, choose **Services > Shut Down All Services**).
2. Shut down the operating system.
3. Power off the system.
4. Push in the gray release buttons on both side-swing extractor handles.
5. Using your thumbs, push the extractor handles to the side (outwards from center) and back to release the board.
6. Then grab the handles and pull the board toward you and out.

Swapping a Power Supply

The MAX4000's three power supplies, located in the back of the unit, are easily accessible and hot-swappable (removing or adding a power supply without shutting down the system or MAXCS does not interfere with the operation of the system). Each power supply has its own power cord.

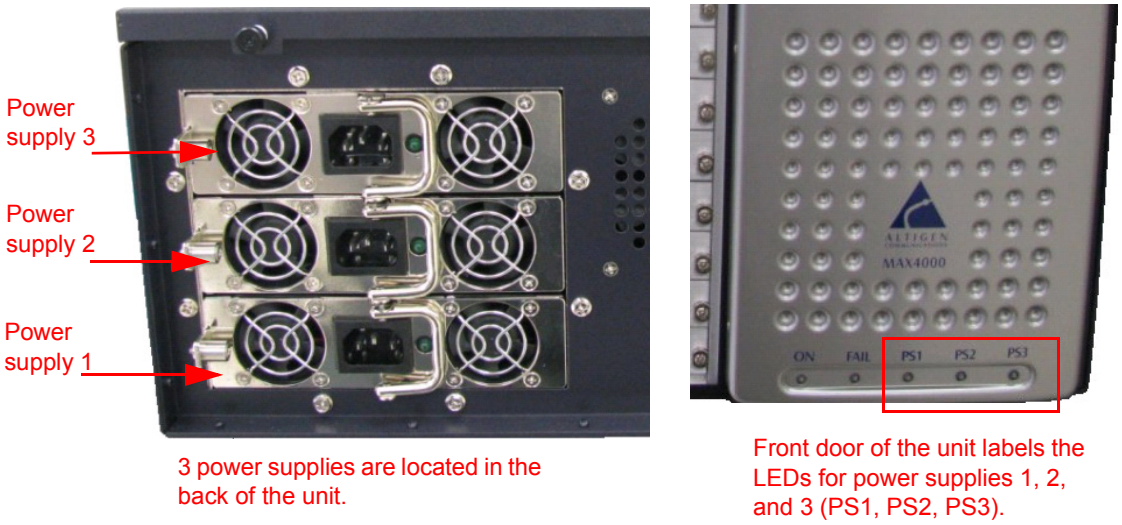


Figure 8. MAX4000 has three hot-swappable power supplies

To remove a power supply,

1. Unplug its power cord.

   A warning tone sounds, and the red "Fail" LED (located behind the front door of the MAXCS) turns red. In addition, the corresponding green LED on the front of the unit turns off. To turn off the warning sound, you can press the red square button located behind the door on the front of the system.
2. Unscrew the captive screw at the left of the power supply (the screw does not come out, it simply loosens).
3. Pull out the power supply, using the power supply handle.

To add a power supply,

1. Slide the power supply into place, making sure the connector in the back is at the bottom.
2. Tighten the captive screw at the left of the power supply.
3. Insert the power supply's plug into the back of the unit in its corresponding receptacle.

   The red LED located in front of the unit turns off, and the corresponding green LED turns on.

Swapping a Hard Drive

The MAX4000 has two redundant hard drives that mirror each other and a third drive that takes over the job of mirroring, if one of the other two drives goes down. When a hard drive is being used for mirroring and is working properly, its LED is green. The spare hard drive LED is orange.

The hard drives are located behind the door at the front of the system.

Figure 9. 3 hard drives behind the door at the front of the system

You can swap a hard drive without shutting the system down. To swap a hard drive,

1. Unlatch the front handle of the hard drive tray by inserting the "pin" end of the unlatching tool provided (or use a paper clip) into the small hole at the pointed end of the latched handle and pushing the internal latch downward.
2. Grasp the lever and pull out the hard drive.

   If you removed an active hard drive, the standby hard drive immediately begins copying the remaining hard drive. Its orange LED flashes between red and green, and its blue LED turns on. The blue LED of the remaining hard drive also turns on, indicating that the two hard drives are synchronizing.

   While the drives are synchronizing, you may periodically hear a short beep.
3. Insert a good hard drive into the slot, holding its lever up until the drive is fully inserted. Push the lever down to lock.

   The hard drive you just inserted becomes the standby hard drive, and its LED is orange.

WARNING! Do not pull out the master hard drive during the synching process.

Index

T

U

V

W